**Department of Industrial Engineering and Management**

# Business Network Re-Design during the Commercialization of B2B Innovations

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Jaakko Wegelius
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# Abstract

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**Name of the Thesis** Business Network Re-Design during the Commercialization of B2B Innovations

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**Abstract**

Commercialization of innovations and business networks are topics that have had a lot of interest in the last decades. This research concerns how firms make use of business networks during the commercialization of innovations. The research focuses on a situation where a firm has to enter to an existing business network and to try to find a position in the business network for its new innovation. The firm has to analyze and design a target area business network during the commercialization of the innovation. The firm having the innovation has to make an intervention to the existing business network, and try to manipulate the network to enable the business of its new innovation.

Extant literature addresses how to carry out value network analysis, business ecosystem design and business reengineering, but they do not explicitly cover how to reengineer or re-design existing business networks. The research elaborates how firms manage business analysis and design in the business network re-design situation. A framework for business network re-design is created using a case study analyzing eight cases. Furthermore, the framework is tested with one more case using action research approach.

The present research contributes to theories by proposing a new framework for business network re-design. The research extends three different extant approaches in the literature to business network re-design situations. The research also proposes some new guidelines for value network analysis, and it shows how co-operation with other parties differ in reorganizing existing business networks compared to designing new ecosystems. Previous studies have suggested that business reengineering can be applied to business network level. The current research shows how this takes place in practice.

The present research contributes to practice by introducing a useful construct to practitioners. Entering to a new market might be an unfamiliar and risky issue for many managers. The business network re-design framework helps the managers to take care of the new situation.

**Keywords** Business networks, value networks, ecosystem design, reengineering, commercialization

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# Tiivistelmä

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**Tiivistelmä**

Tämä tutkimus käsittelee sitä, miten yritykset voivat käyttää hyväkseen liiketoimintaverkostoja innovaatioiden kaupallistamisen yhteydessä. Tutkimus käsittelee tilannetta, jossa yritys tulee mukaan olemassa olevaan liiketoimintaverkostoon ja pyrkii saavuttamaan innovaatiolleen sopivan aseman liiketoimintaverkostossa. Yritys tekee itse asiassa intervention olemassa olevaan verkostoon ja yrittää manipuloida verkostoa suotuisaksi omalle innovaatiolleen.

Olemassa oleva kirjallisuus kuvaa, miten tehdään arvoverkostojen analysointia, miten liiketoimintaekosysteemejä voidaan suunnitella ja miten liiketoimintaa voidaan suunnitella uudelleen (reengineering). Kirjallisuus ei kuitenkaan kuvaa, miten olemassa olevaa liiketoimintaverkostoa tulisi suunnitella uudelleen. Tutkimus käsittelee, miten liiketoimintaverkostoja tulisi analysoida ja miten niihin vaikutetaan tällaisessa muutostilanteessa. Tutkimuksessa luodaan tapaustutkimuksen menetelmin kahdeksan tapauksen avulla liiketoimintaverkostojen uudelleensuunnittelun viitekehys. Tämän jälkeen viitekehys testataan toimintatutkimuksen menetelmin yhden uuden tapauksen avulla.

Tutkimuksen kontribuutiona on uuden viitekehyksen esittäminen liiketoimintaverkostojen uudelleensuunnitteluun. Tutkimus laajentaa kolmea kirjallisuudessa esitettyä lähestymistapaa verkostojen uudelleensuunnittelutilanteisiin. Tutkimus esittää mm. uusia soveltamisohjeita arvoverkostoanalyysiin ja osoittaa, miten yhteistyö muiden osapuolten kanssa eroaa verkoston uudelleensuunnittelussa verrattuna uuden ekosysteemin perustamiseen. Aiemmissa tutkimuksissa on esitetty, että liiketoiminnan uudelleensuunnittelua voidaan soveltaa myös liiketoimintaverkostojen tasolle. Tutkimus osoittaa, kuinka tämä tapahtuu käytännössä.

Tutkimuksessa syntynyt viitekehys on hyödyllinen väline myös ammattilaisille. Siirtyminen uuteen verkostoon ei ole tavanomaista ja siksi on riskialtis tilanne käytännön työtä tekeville. Uusi viitekehys auttaa tällaisen epätavallisen tilanteen hallinnassa.

**Avainsanat** Liiketoimintaverkosto, arvoverkosto, ekosysteemin suunnittelu, uudelleensuunnittelu, kaupallistaminen

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# Acknowledgements

This thesis concerns business network analysis and (re)design when a firm is planning to launch a new service or product – in other words, planning the new business model and business networks to commercialize an innovation. My colleagues and I used the idea of business network re-design in practice already in the first decade of 2000's. We found already that time that there were not many sources that would have described similar things than in our approach.

When I faced the fact that I was 50 years old, I recalled my idea to have post-graduate studies some day. I thought that I have to do it before I realize I am 60. Visiting literature confirmed that business network re-design was still an issue in 2013. First I worked with professor Eero Eloranta to elaborate my idea of the thesis, and in 2014 I started officially the postgraduate studies in Aalto University. That time, it was 25 years since I graduated as M.Sc, Eng.

I thank Eero Eloranta about the possibility to make my thesis and his guidance during my path from a practitioner to a researcher. I also thank my colleagues about their input to business network re-design. I was not the inventor of the approach; it was rather something that many people who worked with business development projects, and people learned from each other. Before the postgraduate studies, there was no documented method for business network re-design, and the practical ideas were not compared with scientific literature. So, my task was to carry out the research.

Last but not least, I thank my family about patience. Even though I knew before starting the postgraduate studies and research that it will take a lot of time, it is still surprising when I notice how much work there is to get a thesis done.

Espoo, 26th September 2016
Jaakko Wegelius

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# 1. Introduction

This chapter provides a short preface to the background of the study, which is followed by introducing the key concepts. Last, the structure of the thesis is described.

## 1.1 Background and Motivation of the Study

Innovation and commercialization activities have gained increasing interest in the last decades. It is said that research and innovation activities provide development and regeneration of the economy (Luoma et al, 2011, p. 21-24). Commercialization makes it possible that a new product can become commercially viable, tradable, and eventually successful on the market (Simula, 2012, p. 114). Another important area for research is business networks. The success of the firm depends more and more on its strategic collaboration with other organizations that influence the creation and delivery of its products or services (Valkokari et al, 2011, p. 32). There is a need for empirical studies to understand both commercialization of innovations and using business networks in innovation activities.

This study concerns how firms make use of business networks during the commercialization of innovations. Furthermore, the study focuses on a situation where a firm has to enter to an existing business network and to try to find a position in the business network for its new innovation. The situation requires the firm to affect to the business network. As the innovation is new to the market, it requires active re-designing of the business network, not just adapting to the existing network. Entering to an existing business network is an interesting context for the studies of managing business networks.

There are many studies that classify the types of business networks (e.g. Möller et al, 2005), discuss how value is co-created in business networks (e.g. Jaakkola & Hakanen, 2013), discuss strategic development of business networks (e.g. Valkokari et al, 2006), and give practical guidelines for managing business networks (e.g. Valkokari et al, 2007). Furthermore, there are some studies that discuss entering to an existing business network (Freeman et al, 2007) and creating a new business network contributed to the commercialization of an innovation (Aarikka-Stenroos & Sandberg, 2007). Still, it is not fully known how firms manage business network re-design during the commercialization of an innovation when entering to an existing business network.

Business network re-design situation provides an interesting research context, because it is a challenging task in the intersection of many known viewpoints. An attempt to alter a business network is related to analyzing and managing existing business networks and creating a new business network. It is also a change process, which is overlapping with the commercialization of an innovation. The objective to commercialize the innovation stands as the starting point for business network re-design. However, the circumstances in the business network may also affect to the commercialization of the innovation. I.e. the firm may have to take into account important actors in the business network, which may affect to the value proposition of the innovation.

Besides business network re-design is an interesting research context in its own, it is likely also to provide valuable practical lessons to managers. The business network re-design is not a typical situation for professionals of commercialization. The activities are carried out rather by pioneers, and studying the business network re-design activities will contribute to the needs of non-pioneer professionals.

## 1.2 Key Concepts and Focus of the Thesis

The main objective of the research is to gain insight on how firms manage analyzing and designing a target area business network during the commercialization of an innovation. This concerns a business-planning situation, where a firm has an innovation, and the existing business models of the firm cannot be used. The firm has to analyze and design a target area business network during the commercialization of the innovation. In other words, the firm having the innovation makes an intervention to the existing business network, and it aims to manipulate or redesign the network to enable the business of its new innovation. In this research, this task is called **business network re-design**.

The initial motivation of the current research was to review existing literature and find a framework applicable for business network re-design situation, and then to test it with empirical cases. However, a directly applicable framework was not found. Instead, the current research collects aspects and themes from the extant literature in order to present a preliminary framework for business network re-design.

The topic concerns commercialization of innovations. Inventions are defined as technically feasible new ideas, and innovations are defined as inventions that are developed into marketable products or services. Moreover, commercialization is considered as the process of developing an invention to an innovation (Simula, 2012).

The research regards especially value innovations, which are also called as business model innovations (Trapp, 2014). A value innovation is seen as a situation, where an innovation is deployed into the market so that the innovation delivers more value to the customer than before. It is not necessary to have a major technical invention behind the innovation. Rather the key idea is to combine benefits to customer, price and costs in a new way (Kim &

Mauborgne, 2005a). A value innovation means a new way for thinking and implementing a strategy that differs from the others.

As business network re-design was defined earlier, the current research concerns understanding and affecting to an existing business network to enable the business of the new innovation. Business network is defined as a network of multiple firms that interact with each other and work together to accomplish certain goals (Ford et al, 2003). The concept of business ecosystem is close to business network. Basically it has the same idea than business network, but it refers to a more systemic and dynamic view of loosely coupled firms[1] that depend on each other for their mutual effectiveness. Value network is defined as a business analysis perspective for business networks. A value network concerns how value is created and exchanged between the actors in the business network (Allee & Schwabe, 2015).

The literature review regards business network analysis on the basis of value network analysis approach, and business network design on the basis of designing ecosystems approach. The literature of re-designing business networks is narrow – thus the literature of redesigning is visited from a more generic viewpoint called business reengineering.

The preliminary research question of the current research is

> *How do firms manage business analysis and design in the business network re-design situation?*

The supportive research questions are as follows

- *How the methods presented in the literature are applied in the business network re-design context?*
- *Are there issues in empiric business network re-design situations that can extend knowledge found in the relevant literature?*

The aim of the study is to discover and describe business network re-design situation. Furthermore, the idea is to find or build a framework that explains how business network re-design takes place during the commercialization of an innovation.

The scope of the study regards product and service innovations in business-to-business markets. Organizational and process innovations are not covered in the current research. Even though terms like “firm” and “commercialization” are used in this research, the approach can be applied also to the innovations of non-commercial and non-profit organizations. E.g. if some municipal or state organization would like to introduce a new service which has an objective of societal effectiveness, it is vital to understand all the different actors who can affect to the new service or who will be affected by the new service. Even if it is a non-commercial service, the launching of the service and getting other stakeholders committed is important. The design and planning process is still similar to commercialization. The firm with the innovation can be new

[1] To be more specific: actors (refer to chapter 2).

or existing. The main point is that the firm is making an attempt to do business in a new way so that it does not have enough of proper relationships in the market to enable its new business.

The current research includes eight different empirical cases, which are used in building the business network re-design framework. The primary empirical material consists of interviews with managers who have conducted business network re-design situation. The interviews are supported by secondary data such as documents. The analysis includes categorizing and comparing the activities in each case to refine the preliminary framework based on the relevant literature. A new business network re-design framework is established after the analysis of the eight cases. Finally, the new framework is tested with one new case, which is carried out as action research.

The author has been responsible for the choice of the theoretical approach, the design of the research, the collection and analysis of the data, and the formation of the conclusions. Discussions with the supervisor have supported the research process and influenced the final form of the dissertation.

The present research contributes to theories by proposing a new framework where the current research extends and merges three different approaches to a coherent methodology for business network re-design. The approach helps to understand how proactive re-designing takes place in business networks. It covers also business network analysis for public sector organizations, not just private firms.

The current research extends value network analysis approach in three ways. It presents how the analysis of interests is linked with the value network analysis, it extends value network analysis to re-design situations, and it provides new mapping techniques and some guidelines for analyzing value flows in specific situations.

The present research also extends designing ecosystems approach to reorganizing existing business networks. The findings show that there are differences in co-operation with other parties and designing new business network roles in a re-design situation.

Previous studies have suggested that business reengineering can be applied to business network level. The current research shows how this is carried out in empirical cases.

The present research contributes to practice by introducing a useful and comprehensive construct (a framework) to practitioners. Entering to a new market is not a typical task in many organizations, and it has a lot of risks. The business network re-design framework provides a way to manage the situation with lower risks.

## 1.3 Structure of the Thesis

The structure of the thesis is shown in figure 1. In Chapter 1, the current research is introduced. The background and motivations of the study are discussed, key concepts are defined and a research question is set. Chapter 2 elaborates relevant theories related to the current research. The purpose is to summarize the existing theories on the research issue and to see if there are already theories that would solve the research questions.

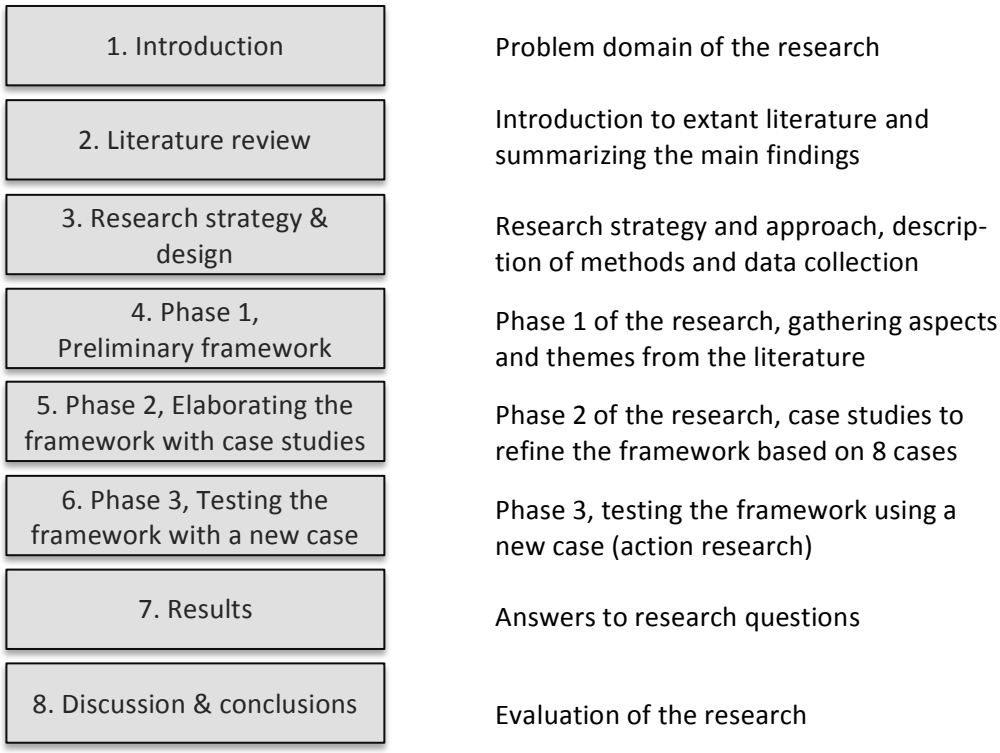



**Figure 1.** Structure of the thesis

Chapter 3 continues with defining the research strategy and research methodology. Chapter 4 (phase 1 of the research) gathers relevant aspects and themes from the extant literature to build the preliminary framework for business network re-design. In chapter 5, the business network re-design framework is refined based on a multiple case study of eight empirical cases (phase 2 of the research). The framework is compared with relevant literature and a cross-case analysis is shown. Furthermore, preliminary answers to research questions are given. The framework is tested with action research based case study in chapter 6 (the third phase of the research).

The final results to the research are introduced and answers to the research questions are handled in chapter 7. Chapter 8 summarizes the research, and evaluates the contribution, validity and reliability of the research. Also the limitations and issues for further research are discussed in the final chapter.

# 2. Literature Review

In this chapter, the relevant literature is visited in order to get a theoretical view of the subject. The central topics of the research are innovations, commercialization, business networks, value network analysis, business network design, and business reengineering.

## 2.1 Innovations and Commercialization

In many cases, innovations and commercialization of the inventions are needed for the growth and success of a firm. In an established market, a firm may concentrate in developing its excellence based on existing products and services. The firm may choose between Porter's (1980) generic strategies (cost leadership, differentiation and focusing in some target market) to maintain competitiveness. However, already Schumpeter (1950) introduced the concept of creative destruction, where new entrants innovate superior products and displace incumbent firms. In global networked economy, many firms have to reconsider their position and they have to try to find competitive advantage by creating new innovations.

Even though the scholars agree about the importance of innovations, there does not seem to exist any commonly accepted way of defining innovation (Simula, 2012, p. 10). Stoneman (1995) provides a useful taxonomy of three stages of the technological change process as invention, innovation and diffusion. The first stage is the invention process, which refers to the generation of new ideas. The second stage is the innovation process where new ideas are developed into marketable products and processes[2]. The third stage is the diffusion stage, where the new products and processes spread and adopted across the potential market. Thus, invention refers to new ideas that are feasible in technological point of view, and innovations are inventions that have commercial potential and provide economic benefit to its developer. Simula (2012, p. 114) defines commercialization as follows:

> Commercialization is a set of business activities, tasks, and actions that run in parallel with ideation and product development processes and complete them so

[2] Innovation is not necessarily developed in a linear process. An iterative model may be used, and the idea of the innovation can be developed during the commercialization process (Engwall et al, 2001, 16).

> that a new product can become commercially viable, tradable, and eventually successful on the market.

Briefly, commercialization is the process of developing an invention to an innovation. After commercialization, a technically feasible invention becomes useful also in business terms.

*Different types of Innovation*

There are a number of ways of classifying innovations, and there is no commonly agreed taxonomy (Simula, 2012, p. 49). One typical way is to divide innovations to incremental and radical innovations. Norman and Verganti (2014) define incremental innovation as improvements within a given frame of solutions ("doing better what we already do"), and radical innovation as a change of frame ("doing what we did not do before"). The current research is concerned how firms can take advantage of business networks during the commercialization of an innovation. Taking advantage of business networks refers to managing changes in business relationships to other firms or other business actors. It could be assumed that incremental innovations are implemented with existing business relationships because the innovation is rather an improvement than making something totally new. Likewise, it could be assumed that radical innovations would require new business relationships (business networks). However, this kind of an assumption is not valid. E.g. a radical innovation concerning the technology of car motors could be applied without any major changes to the business networks of car manufacturers. Thus, dividing innovations to incremental and radical regards rather a technological point of view, and these categories are not useful in the current research.

Many breakthrough innovations are found at the intersections of different disciplines, domains or cultures (Johansson 2006, pp. 15-16). Johnson (2010) states that best business ideas are found in so called white space, uncharted territory or an underserved market, which is not defined or addressed by the company's current business model (Johnson 2010, p. 7). Kim and Mauborgne (2005a) define this kind of innovations as value innovations. They describe how new business can be found by seeking for new untapped market space and make competition irrelevant (Kim & Mauborgne, 2005b):

> Value innovation is the cornerstone of blue-ocean strategy. We call it value innovation because instead of focusing on beating the competition in existing market space, you focus on getting out of existing market boundaries by creating a leap in value for buyers and your company which leaves the competition behind.

Trapp (2014) calls this kind of innovations as business model innovations. Here, the existing business relationships and business models do not give enough support for the commercialization of the innovation. Actually, the task in the commercialization is to reconsider the business model totally.

Christensen and Raynor (2003) use term disruptive innovation in their book The Innovator's Solution. It is described in the book that disruptive innovations don't attempt to bring better products to established customers in existing markets. Rather, they disrupt and redefine trajectory by introducing products and services that offer other benefits that appeal to new or less-demanding customers (ibid, p. 34). A disruptive innovation creates a new market and eventually disrupts an existing market and displaces incumbent firms. Thus, the idea of disruptive innovation is in line with the idea of value innovation.

*Business Model and Value Creation*

One central issue presented in the literature of innovations is value creation. A firm makes business with an innovation using some business model. There is no consistent or rigorous definition of business model (Rajala et al, 2003). Osterwalder and Pigneur (2010) state that a business model describes the rationale of how an organization creates, delivers, and captures value. Ghezzi (2013) notes that many scholars refer business model to "architecture of a business" where it is defined how the enterprise delivers value to customers, enticing them to pay and converting the payments to profit. The business model of the innovation includes many different components, and different authors emphasize them differently. For example, both Chesbrough & Rosenbloom (2002) and Osterwalder & Pigneur (2010) have value proposition and position in the value network in their definition (refer to table 1). Value creation and value networks are discussed more in chapter 2.2.

**Table 1.** Typical components in a business model

| Chesbrough & Rosenbloom, 2002 | Osterwalder & Pigneur, 2010 |
|---|---|
| Value proposition | Value proposition |
| Market segment | Customer segments |
| Structure of the value chain | – |
| Position within the value network | Channels, customer relationships, key partnerships |
| Competitive strategy | Key activities, key resources |
| Cost/profit structure | Revenue streams, cost structure |

## 2.2 Business Networks

*Innovations and Business Networks*

In order to make the commercialization of a business model innovation a success, the business relationships related to the market of the new innovation should be known (Arantola & Simonen, 2009, p. 16). The five forces analysis (Porter 1980) is a straightforward way to analyze the business environment of an innovation: the intensity of rivalry among existing competitors, the threat

of new entrants, the pressure from substitute products, the bargaining power of buyers and the bargaining power of suppliers. This kind of an analysis describes the market of the innovation, but does not reveal the relationships between different actors. The customers, customers' customers, customers' suppliers and partners, competitors, other service providers and the relationships between all of them should be understood when considering a value innovation (Valkokari et al, 2009, p. 200). These actors can be seen as a network (or multiple overlapping networks), actually. So, the behavior of such networks should be analyzed and understood during the commercialization of an innovation. By this way, it is possible to get a deeper view of the business environment of the innovation.

The analysis and understanding of the networks is just the first step. To win the game, the firm having the innovation should be able to affect to the other actors and build a network that is beneficial to its own innovation. Freeman et al (2007) describe how firms may use existing networks to enter to a new market. Aarikka-Stenroos and Sandberg (2007) also describe a case study how creating a business network contributed to the commercialization of a radical innovation.

*Business Networks, Ecosystems and Value Networks*

Business network is a broadly used concept. Ford et al (2003) define business network as a complex network of companies, working together to accomplish certain goals. Möller and Wilson (1995) define network as relationships (a set of nodes and relationships) between multiple firms that interact with each other.

Business ecosystem is used many times as a synonym to business network. Peltoniemi and Vuori (2004) notify that many authors have something to say about business ecosystems but fail to give a definition for this concept. Peltoniemi and Vuori (2004) define business ecosystem to be a dynamic structure, which consists of an interconnected population of organizations. These organizations can be small firms, large corporations, universities, research centers, public sector organizations, and other parties, which influence the system. Thus, the concept of business ecosystem is similar to the concept of business network, but it has more emphasis on the systemic and dynamic nature of the ecosystem. Den Ouden (2012, p. 17-18) uses terms business network and ecosystem interchangeably and emphasizes that ecosystems have a large number of loosely interconnected participants who depend on each other for their mutual effectiveness and survival.

Value network is an approach to understand value creation in business networks. Parolini (1999) defines value-creating system as a set of activities that create value for consumers, and value-creating systems contain several economic actors who may be involved in more than one value-creating system. Allee (2003) defines value network as any web of relationships that generates tangible and intangible value through complex dynamic exchanges between two or more individuals, groups, or organizations. So, the emphasis is on value

creation and the exchange of value: how different actors create value, how different actors in the network receive or consume value, and how value is exchanged between actors.

*Value Network in Change Situations*

Ghezzi (2013) describes how discontinuity affects to business model and value network. Discontinuity can be external or internal. He has two case studies that include a number of discontinuity issues. Some of the issues regard innovations and technological changes. Ghezzi (2013) states that discontinuity insists a firm to maintain the adequate strategic fit. This means strategic replanning, which requires reconfiguring the business model, the value network, and the resource management of the firm as a whole. Particularly, the reconfiguration of the value network means restructuring of strategic relationships with other firms.

Christensen and Rosenbloom (1995) analyze why entrants might have an advantage over an industry's incumbent firms in developing and adopting new technologies (innovations). They propose that the value network is one of the key factors affecting whether incumbent or entrant firms will most successfully innovate. Christensen and Rosenbloom (1995, pp. 254-255) describe in the conclusion that

> We propose that innovations be categorized also by the degree of mobility they enable or require across value networks. If no mobility or change in strategic direction is required – if the innovation is valuable within a firm's established value network – the character of the innovation can be considered straightforward, regardless of its intrinsic technological difficulty or riskiness. If realization of inherent value requires the establishment of new systems of use – new value networks – the innovation is surely complex even if it is technologically simple. This is because such innovation requires far more than technological activity. ...
>
> Incumbent firms are likely to lead their industries in ... straightforward innovations in that their value and application are clear. Conversely, incumbent firms are likely to lag in the development of technologies – even those where the technology involved is intrinsically simple – which address customers' needs as defined in emerging value networks.

In his book “The Innovator’s Dilemma”, Christensen (2003) points out that even well managed and highest performing firms may fail when it comes to disruptive innovations. Again, he emphasizes that the value network concept explains why the entrants have an advantage over the incumbents. It is not a consequence of differences in technological or organizational capabilities, but of their position in the industry’s different value networks. Christensen shows that disruptive technologies may have been first developed in the established firms, but their existing lead customers were not interested in the first place. As a consequence, the established firms concentrate more probably in enhancing existing technologies. Meanwhile, new entrants start adopting new tech-

nologies and create their value network suitable for the innovation. Christensen (2003, p. 63) emphasizes that

> The key considerations are whether the performance attributes implicit in the innovation will be valued within the networks already served by the innovator; whether other networks must be addressed or new ones created in order to realize value for the innovation ...

Christensen (2003) also notifies that companies that entered the new value networks enabled by disruptive innovations within the first two years after the innovations appeared were six times more likely to succeed than those who entered later in disk drive industry between 1976 and 1994. Christensen (2003) describes also how technology strategy and market strategy influence the success of the innovation (see figure 2). The vertical axis denotes whether the firms we using new or established technology, and horizontal axis denotes whether the firms were entering to the market with established or emerging value networks. The findings show that market strategy is much more important than the technology strategy.

The value creation should be analyzed so that the firm having the innovation can evaluate the earning model and consider how to share the created value between the actors in the network (Malinen & Haahtela 2007, pp. 25-26). This means that the firm having the innovation makes an intervention to the existing business network, and tries to manipulate or redesign the network to enable the business of its new innovation.

| **Technology Strategy at Entry** | Established Network | Emerging Network |
|---|---|---|
| New Technology | Successful cases: 0 out of 12<br>Sales: $236.7 | Successful cases: 3 out of 7<br>Sales: $16,379.3 |
| Proven Technology | Successful cases: 3 out of 33<br>Sales: $3.056.2 | Successful cases: 9 out of 22<br>Sales: $45,743.7 |

**Market Strategy at Entry**

**Figure 2.** Success of disk drive manufacturers, technology vs. market strategy
Adapted from Christensen (2003, p. 145). Success: number of firms reaching $100 million in annual revenue at least one year between 1976 and 1994 compared to total number of successful and failed cases. The amount of sales is expressed in millions of dollars.

## 2.3 Value Network Analysis

Today, it is seen as an inevitable fact that no firm or organization is an isolated entity. Every firm is having a lot of relationships with its environment: suppliers, partners, customers etc. Value network analysis (VNA) provides an approach to understand both the entire network of some business domain and the role of each actor in the network (Allee & Schwabe, 2015).

A value network consists of actors that have a purposeful relationship for exchange (Malinen & Haahtela, 2007, p. 32). The actors in the network can be firms or other organizations, persons or groups of persons. There is a connection between two actors when they exchange value with each other. At the simplest, the there is the exchange of goods to money. However, the exchange can concern anything that creates value to the actors such as knowledge or other intangible assets.

When looking at single relationships, value exchange describes why to actors have businesses together: what value a party gives to another and vice versa. When having a bit larger view, the single connections across many actors create similar structures as value chains. However, the connections do not just constitute a linear chain: every actor has a number of suppliers and a number of customers. It is about a network rather than a chain. To summarize, the value network is the overall picture of all value exchanges within a business domain.

The modeling techniques in value network analysis may differ a bit from author to author, but the main principles are the same. E.g., it is possible to analyze and make very detailed value network mapping using the modeling techniques of Allee and Schwabe (2015). The basic elements of the modeling are

- Roles (nodes)
- Transactions (arrows)
- Deliverables (labels of the arrows).

Using these basic elements, it is possible to map all actors (roles) and value flows (transactions and deliverables) in the network. The value flows may consider tangible value flows (goods, services, money and credits) and intangible value flows (knowledge, information and other intangible benefits). This kind of a map describes the all the relevant relationships between different actors (an example is shown in figure 3).

Allee (2000) points out that value network analysis can be used to understand some situations that look strange at first glance. For example, a manufacturer let competitors to sell their products via its own web site for free. The company was able to gain usage data of its competitors' sales. Allee (2000) shows that the company analyzed the end user behavior and created intangible benefits for the end users to attract them better.

Albadvi and Hosseini (2011) instruct to use also tables to describe the value exchanges in addition to the visual maps. The tables include information about who delivers what value to whom. They also add other information to the tables like how significant the relationship to another actor based on the focal company's viewpoint. It is also possible to add some metrics to quantify each business customer's value. Basically, the value network analysis is the same, but it is possible to manage some auxiliary information in the columns of the table describing the value exchanges.

Allee and Schwabe (2015) also give instructions how to validate the network patterns and how to check if there are problems in the network (for example

missing links or unbalanced situations). A key principle in the value networks is reciprocity: if an actor delivers value to some other actor, it should also get some value in return (directly from the other actor or via a third party). Allee and Schwabe (2015) tell that value network analysis can be used to make improvements, but they do not tell exactly how. Albadvi and Hosseini (2011) also point out to use value network analysis as a way to find new opportunities, but their only advice is to revise value exchanges and have brainstorming sessions.

Value network analysis has been used since the turn of the century and it makes it possible to understand the logic within a business domain: who makes business with whom and why. The analysis is applicable for single connections between two actors (or a couple of actors) and for a business domain (network). Fjeldstad and Ketels (2006) also show that value network can be used as a tool in decision-making, and it is a suitable tool to understand disruptive situations in the market.

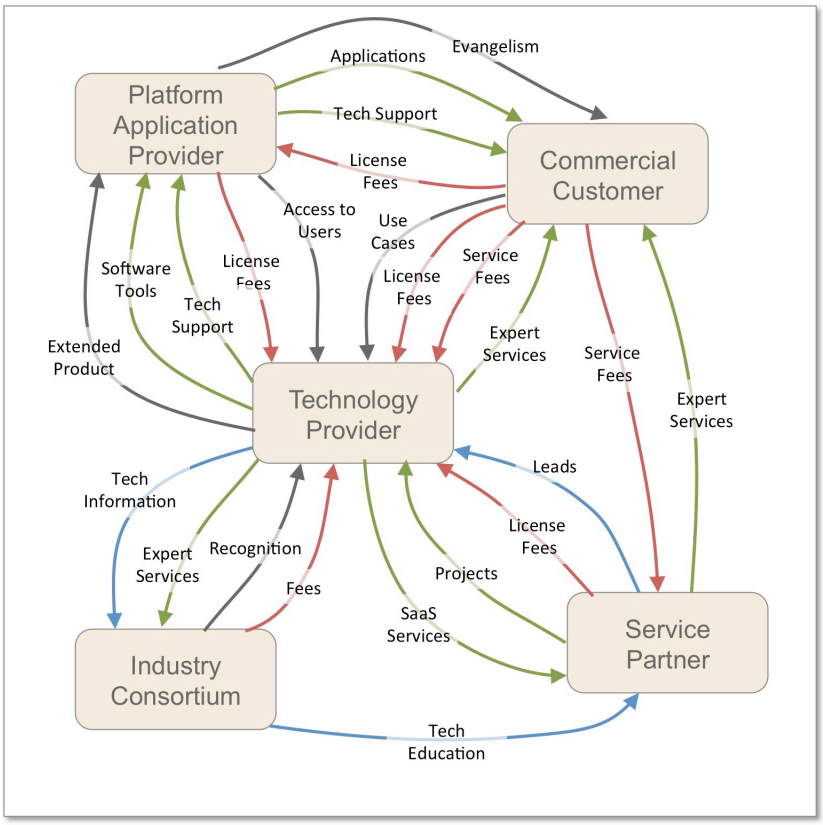



**Figure 3.** An example of a value network diagram
Rounded rectangles represent actors, red arrows monetary transactions, green arrows goods and services, blue arrows knowledge and information, and black arrows other intangible transactions[3]. Adapted from Allee & Schwabe (2015).

[3] Notion has been adapted here; Allee and Schwabe used ovals for actors and dotted lines for intangible transactions (knowledge and other intangible). The original figure had more value flows – here, the number of flow has been reduced to maintain readability.

## 2.4 Design of Business Networks

Value network analysis shows how to analyze a business network. The next step is to design a business network. In the literature, the design of business network is often called as the design of an ecosystem (or designing ecosystems). This refers to a situation where a totally new ecosystem is created.

Den Ouden (2012) has introduced value framework to be used together with value network analysis. She shows in her book "Innovation Design" (2012) that it is possible to design a new ecosystem using the value framework and value flows. Den Ouden sees that there has been or is a paradigm shift from the agricultural economy to the industrial economy, from the industrial economy to the experience economy, and from the experience economy to the knowledge economy (Den Ouden 2012, pp. 5-10). The next shift will be from the knowledge economy to the transformational economy, where demand is much more dependent on societal, ecological and individual aims and values because many people are willing to contribute to higher goals and meaningful lives. The innovations need to address to these new kinds of aims of people. These meaningful innovations aim to advance economic and social conditions of society while at the same time enhancing the competitiveness of companies" (Den Ouden 2012, p. 149).

The value flows (Den Ouden 2012) correspond to the value network mapping introduced in chapter 2.3. The value framework combines four levels of value (user, organization, ecosystem and society) with four views (economy, psychology, sociology and ecology).

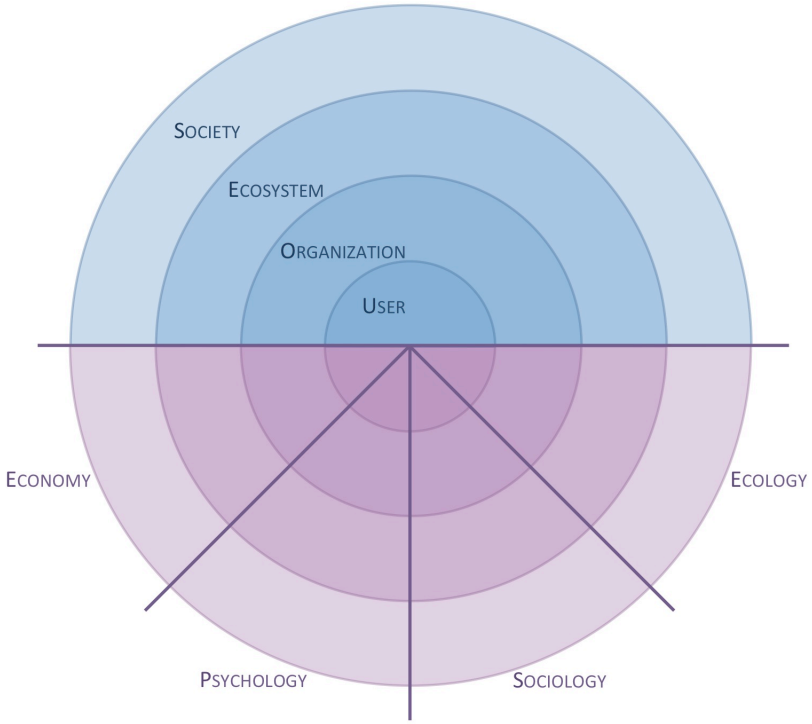



**Figure 4.** Value framework, adapted from Den Ouden (2014)
The framework has 4 x 4 structure, i.e. 16 different segments.

As a result of 4 x 4, there are 16 different segments in the value framework (see figure 4). A new transformational innovation has to make a value proposal for all relevant stakeholders. The more segments the value propositions of the new innovation covers, the more value is created (Den Ouden 2012, p. 92).

Using the value framework and value flow analysis, a new ecosystem for a transformational innovation can be designed based on the following steps (Den Ouden 2012, pp. 143-188):

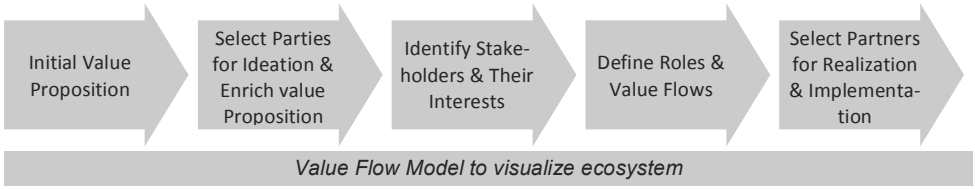



**Figure 5.** Steps in designing a new ecosystem
Adapted from Den Ouden (2012, 154). Iterations are not visualized.

1. Initial value proposition

   The first tasks to do are: understanding the challenge, getting insight and framing the problem. There are many ways to get insight about the problem. The result of the step is the initial value proposition that should be formulated briefly.

2. Select parties for ideation and enrich the value proposition

   The step starts with an understanding of which parties could contribute with relevant knowledge regarding the value proposition. The parties are invited to take part in collective exploration and enriching the value proposition as a joint effort.

3. Identify stakeholders and their interests

   The step includes identifying stakeholders, analyzing their characteristics, estimation of the power and influence of the different actors and the position and predictability of behavior of the stakeholders.

4. Define roles and value flows

   The value flow model includes the following elements: actors indicated as roles, describing the motivations of the actors, comparison of the compatibility of the motivations with the value proposition of the innovation, estimation of needed investments and throughput time, transactions between actors, dividing the value network to core proposition, complementary offerings, supplying and enabling networks, and other stakeholders areas (see figure 6 for an example).

5. Selecting parties for realization and implementation.

   The organizations involved in the designing effort indicate which roles they would like to perform. For the remaining positions, potential organizations are screened, and an engagement strategy is developed to approach them. The value flow model is adapted and value is balanced for all parties.

The innovation design described above concerns the design of a new ecosystem, which is a relatively large scenario. Den Ouden (2012) sees that the design of a new ecosystem takes place in an innovation ecosystem as a joint effort of its members, who are also the key players of the new ecosystem to be designed (Den Ouden, 2012, pp. 143-145). The decision-making is not fully centralized, but some kind of a leadership is needed in the ecosystem (Den Ouden, 2012, pp. 150-151).

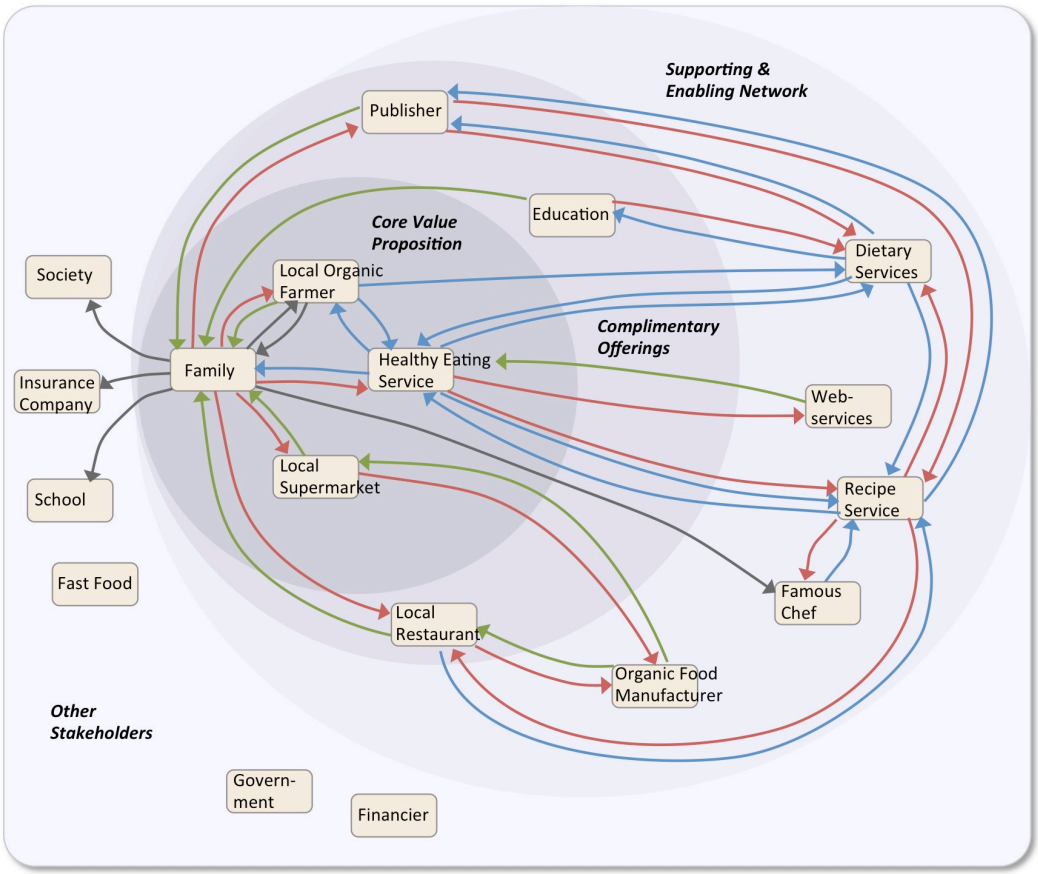



**Figure 6.** Value flow model and different areas of a new ecosystem
Adapted from Den Ouden (2012). The actors of the new ecosystem are added to the map, value flows are drawn between them. The map is divided into different areas: core value proposition, complimentary offerings, supplying and enabling network, and other stakeholders.

## 2.5 Business Reengineering

The situation explained in chapter 1 can be seen also as a business-reengineering task, where a firm rethinks the way it does its work to dramatically improve customer service and cut operational costs. There is a branch of literature, which concerns business reengineering, also referred as business process reengineering. Business reengineering concerns typically processes within companies. The processes may also include some steps carried out by partners or customers.

The concepts of reengineering and redesign are considered in varying ways in the literature. Some authors consider reengineering as a larger scenario than redesign (e.g. Kettinger et al, 1997), and some as equal terms (e.g. Davenport, 2013). In this chapter, redesign and reengineering are considered as equal concepts for the purpose of the current research.

Hewitt (1994) considers that business process redesign (reengineering) can be applied to a larger context than just within a firm. He shows an example where business process redesign is applied to supply chain business process. Here, the scope of business reengineering is moved from intra-enterprise to inter-enterprise. Business reengineering does not concern business networks directly, but the same approach can be applied to the context of business networks. Venkatraman (1994) introduces a model of five levels of business transformation (see figure 7). One of the levels is "business process redesign" (reengineering), and the next level is "business network redesign". Even though these two levels concern different issues, they both consider redesigning the existing ways of doing business.

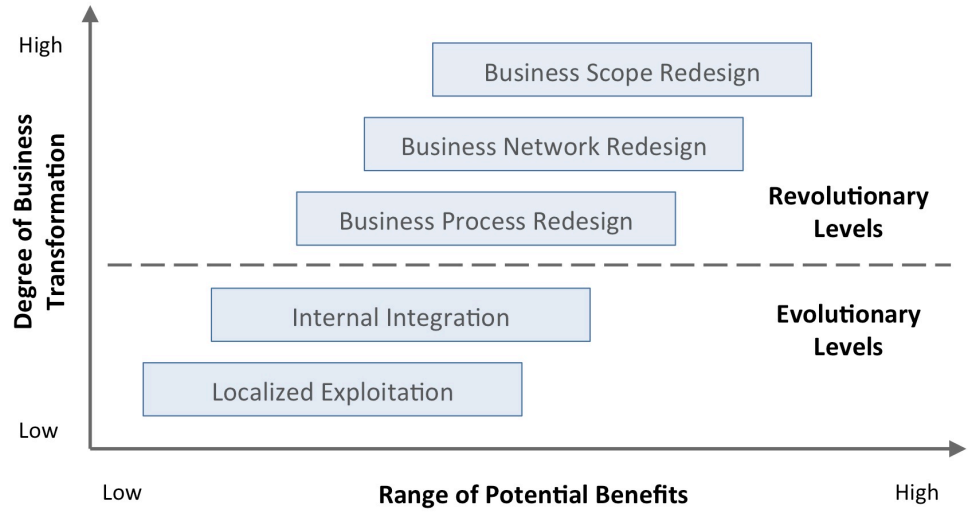



**Figure 7.** Levels of business transformation, adapted from Venkatraman (1994)

Hammer and Champy (2001) describe business reengineering in their book "Reengineering the corporation". They manifest that firms have to reinvent of how they do their work in the 21st century. Traditionally, firms have been organized into sub processes and tasks so that each unit and team has a responsibility of some basic task. Firms cannot rely on these traditional functional units and ways of working any more – they must organize their working based on the key processes and consider a whole process, not the single tasks.

The change cannot take place just as incremental adjustments to the existing model of the firm. The firm has to reinvent how to work, and rebuild the organization. Hammer and Champy (2001, p. 35) define business reengineering as follows:

> Reengineering, properly, is fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed.

There are four key words in the definition (Hammer & Champy, 2001, pp. 35-38):

- **Fundamental**. This means asking oneself questions like "why we do what we do?" There should not be any assumptions – everything has to be questioned. The firm has to redefine what it is doing before it can answer how to do it.
- **Radical**. This means that all structures and processes have to be re-examined, not just improved.
- **Dramatic**. To start reengineering, the target has t be total change. If the objective is just to enhance some KPI by 10%, it is not a matter of reengineering.
- **Processes**. The key topic is to understand the value creating processes as a whole – not just a collection of individual tasks.

The core of business reengineering is to define the key processes, keep them simple enough, and organize the way of working based on the processes – not based on organizational units. The key performance indicators also are changed from measuring the performance of tasks to measuring of results. Reengineering is not just engineering; it requires very well planned change management.

There are some recurring themes regarding business reengineering. One of them is the shifting of work across organizational boundaries (Hammer & Champy, 2001, pp. 59-61). Sometimes this means that the supplier does something in behalf of the customer, or vice versa.

When considering business networks, a similar approach could be used. Then, the context is how to reengineer the business across many firms – to reengineer business networks.

## 2.6 Summary of Guidelines Found in the Literature

Figure 8 gives a summary of three approaches described in the extant literature: value network analysis (Allee & Schwabe, 2015), designing ecosystems (Den Ouden, 2012), and business reengineering (Hammer & Champy, 2001).

Value network analysis is an approach for understanding the dynamics in value creation (Bocken et al, 2013; Lindskow, 2016) by identifying collaborative interactions between business actors in intra- or interorganizational networks (Weber et al, 2012; Bisiaux et al, 2013). It helps to form questions about optimizing the value flows (Randmaa et al, 2012), but not designing business networks or business models (Bocken et al, 2013).

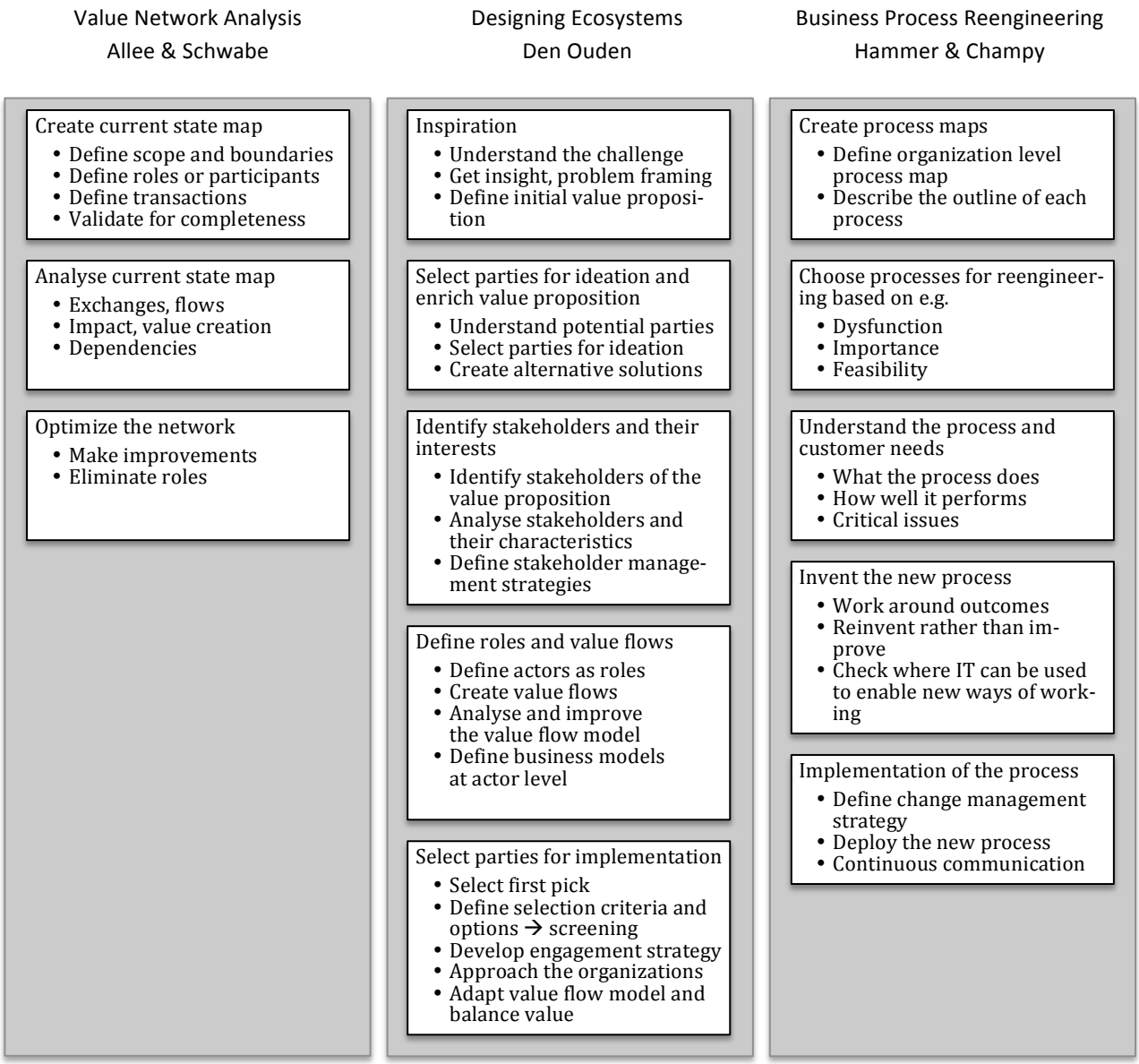



**Figure 8.** Three approaches described in the extant literature

Value network analysis is concerned about creating the current state map of a business network and analyzing it. Allee and Schwabe (2015) describe some ways to optimize or improve the network, but there are no comprehensive methods described. Figure 8 shows the main phases and the steps in each phase of value network analysis.

The starting point for designing ecosystems is that solutions to big collective issues cannot be created by single firm – a wide variety of partners need to join forces for more complete and complex innovations (Gardien et al, 2014; Artič, 2013). The innovation process and designing the new business network takes place as co-creation. However, the original designers (initiators of the innovation) can play a key role within the collaboration network initiation and formation (Baha et al, 2013).

Designing ecosystems has two phases for the innovation stage: defining the core of the innovation (inspiration) and co-ideation (select parties for ideation and enrich value proposition). The approach has no current state network analysis like in value network analysis – it continues with creating the target state network: analyzing stakeholders and their interests, and defining roles and value flows. Even though these phases are described as sequential phases in figure 8, they are actually overlapping and the phases are highly iterative in the nature (Den Ouden, 2012, p. 153). Even though value flows are mentioned in the fourth phase in the figure, the visualization of the network starts already in the very first phases. The last phase in designing ecosystems is the starting point for the implementation of the designed ecosystem. In principal, the actors in the network are kept just as unoccupied roles until the last phase.

Hammer and Champy (2001) do not describe business reengineering to take place as pure sequential phases or steps. However, they introduce the main issues to handle and some important viewpoints, which are shown as phases and steps in figure 8. Hammer and Champy (2001) point out that the first thing to do is to have organization level process maps before to choose the first process to be reengineered. And when reengineering a process, the first thing is to understand the process and customer needs. Next, the reengineered process should be invented. Hammer and Champy (2001) give freedom here how to proceed, but they suggest start working with the outcomes of the process. The implementation phase is also highly dependent on the organizational culture, but it requires good change management and communication.

The research question defined in chapter 1.2 is “How do firms manage business analysis and design in the business network re-design situation?” Two supportive questions were also defined:

- *How the methods presented in the literature are applied in the business network re-design context?*
- *Are there issues in empiric business network re-design situations that can extend knowledge found in the relevant literature?*

The idea was to see what kind of guidelines the extant literature offers. Furthermore, the literature was examined to see if we could find some framework suitable for business network re-design situations. To summarize, guidelines were found, but not a ready-made framework for business network re-design.

The value network analysis (Allee & Schwabe, 2015) gives a clear picture how to analyze business networks. There are also some ways to optimize certain issues regarding networks, but value network analysis does not describe how to design a new network, or how to re-design a network.

Den Ouden (2012) has introduced methodology for ecosystem design based on value networks. Designing ecosystems approach has a lot of similarities with business network re-design situation. It gives guidelines how to set up a brand new business network. However, it does not consider the situation where a firm makes an intervention to an existing business network and tries to reengineer the business network. Furthermore, the context of designing

ecosystems has some assumptions that are not valid for the context of reengineering or re-designing a business network as the comparison in table 2 shows. First, it is assumed that a brand new ecosystem is to be created – not to re-design an existing network. Moreover, the creation of the ecosystem is assumed to take place as co-creation with the other actors and stakeholders (Den Ouden, 2012, p. 162). Co-creation and co-ideation are ideal when the situation is equal for all participants. When re-designing a business network, the organization with the innovation is more likely a newcomer in an existing market, and it is possible that it is hard for the newcomer to co-ideate new business models with much more powerful actors. At least, it is not known whether the firm with the new innovation is likely to start co-ideation with other actors or not.

Business reengineering (Hammer & Champy, 2001) gives a framework how to rebuild a firm's business. It does not actually tell how to do the business design if it is about a totally new kind of business, but the principles of business reengineering can be applied here. However, business reengineering does not cover how to design business in a network.

The methods presented in the literature give a good starting point, but not feasible as such for reengineering or re-designing business networks. There is a need for a comprehensive method or a framework suitable for business network re-design situations.

**Table 2.** Designing ecosystems vs. business network re-design

| Designing ecosystems assumptions | Contrast with business network re-design |
|---|---|
| There is a need for a totally new ecosystem, which is being designed from scratch. | Existing business networks have their strengths, which should be made use of. The idea is to adjust the networks in favor of the new innovation. |
| The design of the new business network is carried out as co-design. | The entrant firm may have a temptation to analyze and prepare the new ecosystem before starting the co-operation with the other actors in order to influence to the existing network. |
| Internal stakeholders within the actors' boundaries are not considered (Den Ouden, 2012, 165). | Internal stakeholders' interests may differ a lot, and they should be analyzed to understand the business environment well enough. |

# 3. Research Strategy and Methodology

This chapter concerns defining and discussing the research strategy and approach. It describes also the case research methods and data collection.

## 3.1 Research Strategy and Design

The aim of the study is to discover and describe business network re-design situation – i.e. to understand how firms manage business analysis and design in the business network re-design situation. The idea is to understand the phenomenon, reasons and decision-making regarding business network re-design situations. In other words, answers to questions like "why" and "how" are needed. Ideally, there could be a framework that shows step-by-step how to carry out business network re-design.

In chapter 1, the preliminary research question of the current research was formulated as

> *How do firms manage business analysis and design in the business network re-design situation?*

The supportive research questions were defined as

- *How the methods presented in the literature are applied in the business network re-design context?*
- *Are there issues in empiric business network re-design situations that can extend knowledge found in the relevant literature?*

The research started with getting familiar with relevant literature in chapter 2. There is extant literature about analyzing and designing business networks, and also about business reengineering, which is a kind of business re-design task. It was possible to pick some guidelines from the relevant literature, but there is no directly applicable framework for business network re-design. It is needed to build such a framework in the current research, and the preliminary research question and supportive questions are still valid.

The current research is divided into three phases (see figure 9). The first phase is to elaborate the literature and to gather a set of applicable guidelines for business network re-design. Relevant aspects and themes in the literature are evaluated to create a preliminary framework for business network re-design.

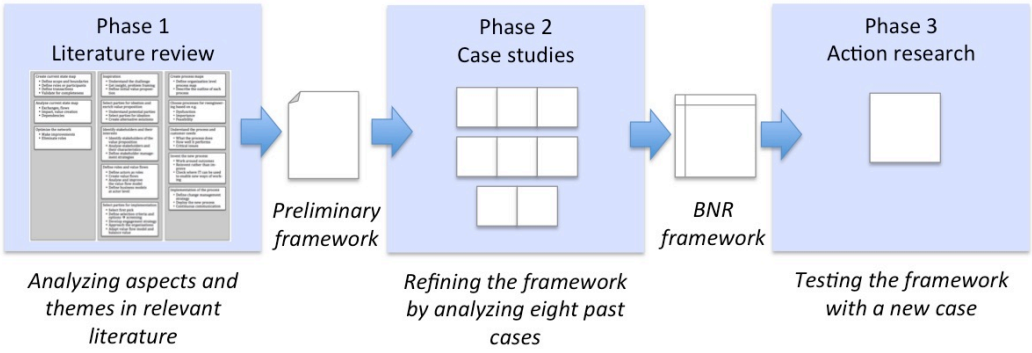



**Figure 9.** Phases in the research

The preliminary framework is expected to contain candidates for phases and steps that are likely to be applied in business network re-design.

The second phase consists of exploration and inductive theory building to determine the framework that describes how firms manage business network re-design. The preliminary framework is refined based on empirical findings. Case study has been chosen as the research strategy here. The study involves multiple cases of known business network re-design situations in order to identify repeating patterns in different cases. The outcome of phase 2 is a new framework for business network re-design.

The research continues with testing the new framework in the third phase. The testing of the framework means to solve new business network re-design problems in the real business life. Because the framework is a novel one, we cannot just make observations about the phenomenon. Instead, we need to make an intervention in order to apply the new framework, and try to solve practical problems of firms with it. This approach calls for the researcher to participate in the problem solving. Action research (Gummesson 2000; Coghlan & Brannick, 2001; Kananen, 2009) has been chosen as the research strategy for the third phase of the current research. Phase 3 may also reveal some new issues regarding the framework. Therefore, the phase concerns also refining the framework if needed.

## 3.2 Research Methodology

### 3.2.1 Case Study as a Research Strategy

The case study research method is often used when a contemporary phenomenon in a real life context needs to be investigated and a better understanding of a complex phenomenon is needed, and the aim is to build a theory and then test it (Koskelo, 2005, p. 9). In the current research, case studies are used to build the framework for business network re-design.

The research applies the inductive research approach of *building theories from case study research* of Kathleen Eisenhardt (1989). The case study is a research strategy, which focuses on understanding the dynamics present within single settings (Eisenhardt, 1989, p. 534). The process of building theory

from case study research is shown in table 3. The research starts with an initial definition of the research question, and the research question is refined during the research process according to results gained from the case studies. Eisenhardt emphasizes that it is important to overlap data analysis and data collection, which allows the researcher to take advantage of adjusting data collection during the research (Eisenhardt, 1989, pp. 538-539). The central idea is that researchers constantly compare theory and data – iterating toward a theory, which closely fits the data (Eisenhardt, 1989, p. 541).

The research approach is an iterative theory building and testing process where the refining of theory and data collection methods take place both within-case and cross-cases. The iteration continues (more cases are added) until theoretical saturation is reached (when incremental learning is minimal).

**Table 3.** Process of building theory from case study research (Eisenhardt, 1989, p. 533).

| Step | Activity |
|---|---|
| Getting started | Definition of research question<br>Possibly a priori constructs |
| Selecting cases | Neither theory nor hypotheses<br>Specified population |
| Crafting instruments and protocols | Multiple data collection methods<br>Qualitative and quantitative data combined<br>Multiple investigators |
| Entering the field | Overlap data collection and analysis, including field notes<br>Flexible and opportunistic data collection methods |
| Analyzing data | Within-case analysis<br>Cross-case pattern search using divergent techniques |
| Sharpening hypotheses | Iterative tabulation of evidence for each construct<br>Replication, not sampling, logic across cases<br>Search evidence for ”why” behind relationships |
| Enfolding literature | Comparison with conflicting literature<br>Comparison with similar literature |
| Reaching closure | Theoretical saturation when possible |

### 3.2.2 Action Research

According to Coghlan and Brannick (2001), action research is based on a collaborative problem-solving relationship between researcher and target organization aiming to solve a specific problem and generate new knowledge. Denscombe (2010) mentions that the purpose of action research strategy is to solve a particular problem and to produce guidelines for best practice.

Action research and case study share many common features. In both approaches, the analysis is based on cases. The fundamental difference lies in the role of the researcher (Kananen, 2009). In case study research, the researcher is an outside observer, who does not participate in the action of the phenomenon. In action research, the researcher participates actively in the phenomenon and is a member in the society. The purpose of the research is also different. Action research aims at solving a practical problem and making a change in the target organization. The researcher is a change agent, and he or she

makes an intervention by participating in planning and executing the plan. In case study research, the researcher rather makes observations than participates in the action. Action research can be considered as a larger setting where case study is a part of it (see figure 10).

Action research is rather an approach than a set of specific methods or techniques how to conduct the research or how to carry out the problem solving. However, there are some typical features and phases. Bryman and Bell (2011, pp. 413-415) mention for example experiments are on real problems within an organization and they are designed to assist in the solution, which involves iterative process of problem identification, planning, action, and evaluation; it leads to re-education, changing patterns of thinking and action. The data collection methods are similar to those of qualitative methods in general (Kananen, 2009).

In general, action research is heavily connected with a unique and practical case – thus, the researcher should be cautious when thinking about the generalization of the results of a single case. In this research, the action research phase is linked to the previous phase, and it is used to test the new framework.

Action research contributes both theory and practical action. To contribute to theory, action research requires some qualitative background research. If the phenomenon or the problem is unknown, it is not possible to make a plan and actions to solve the problem. Gummesson (2000, p. 214) points out that a practitioner may choose any methods he or she considers applicable, but a researcher has to justify the choice of methods. The framework developed in the second phase of the current research acts as the background theory, which justifies the framework applied to practical situations.

For, practical contribution, the research should provide a solution, which is usable for everyday life in the target organization. However, solving a practical

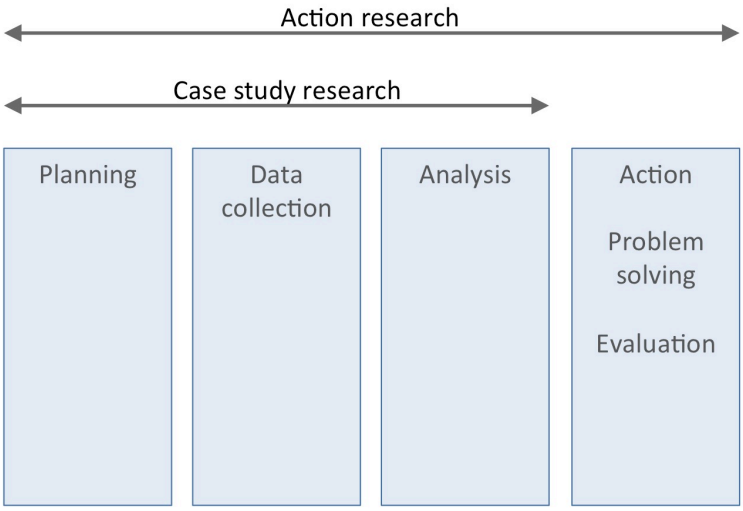



**Figure 10.** Action research vs. case study research, adapted from Kananen (2009)

problem is just a part of action research. The research should also add new knowledge about the phenomenon, and it should have implications that relate to situations other than the one studied. In this context, it means that the business network re-design framework is refined according to the findings in the third phase.

## 3.3 Working with Empirical Data

### 3.3.1 Case Selection

Empirical data was used in phases 2 and 3 in the current research (refer to figure 9). In phase 2, some past empirical cases were needed for the multiple case study in order to refine and build the business network re-design framework. In phase 3, one new case was required to carry out the action research in order to test and validate the framework.

In inductive theory building, the case selection is based on specified population and theoretical, not random sampling (Eisenhardt, 1989, p. 537). The researcher has to select some cases available to him or her that are interesting in light of the research questions. The cases needed to fulfill the criteria of a business network re-design case:

- There is an innovation, where a change to existing business model is required
- The change in business will likely alter the existing business network
- The solution is not self-evident.

The idea was also to have large and small companies, as well as private and public organizations included in the research. Potential cases were sought via the colleague and consultant network of the author. The selection of the cases was limited to cases that took place within less than 10 years in order to avoid bias in recalling events in the interviews. Eight applicable past cases were identified for the second phase of the current research (refer to table 4). Three cases concerned a large IT company that wanted to launch a new business line and a new service portfolio. The service portfolio consisted mainly of consulting and SaaS services. Even though the three cases concern the same large IT company, they all had a bit different business network context. Three other cases considered small companies from different industries (welfare benefit payment management, real estate management consulting, IT consulting). Two cases regarded public sector.

**Table 4.** Description of the eight cases in phase 2

| Group | Case | Description |
|---|---|---|
| Large IT company (three separate cases within one company) | Electronic election service, 2007 | A software-as-a-service innovation to provide full service election handling supporting both traditional and electronic voting e.g. to unions and cooperatives |
| | Election result service, 2008 | A multi-channel service to provide real time election result information to candidates and voters as the counting proceeds |
| | Competitive bidding service, 2008-2009 | A software-as-a-service innovation for public sector competitive bidding process to manage bidding process as an e-service |
| Small firms (three cases, three different companies) | Start-up with new payment management idea, 2009-2010 | A technical innovation regarding payment handling when the payment is supported e.g. by an employer or a discount is dependent on card issuers agreements with service providers |
| | Real estate management consulting, 2009-2010 | An innovation regarding real estate usage, sizing and maintenance concept; part of a Tekes technology development programme |
| | Small IT consulting company, 2010-2011 | IT architecture and development consulting services |
| Public sector (two cases, two different organizations) | E-business framework, 2011-2012 | A common e-services platform and support services for Finnish public sector |
| | Information services partnership model, 2012 | The partnership network for Finnish population register's information services |

Each of the cases regarded different kinds of services. The three small companies can be seen as new entrants with new value proposition in the market. Actually, the three services of the large IT company are also considered as new entrants in the markets, because the large IT company was establishing a new business line with new service portfolio. The other of the public sector cases, the e-business framework, was also a totally new service and an entrant in the market. The other public sector case (information services) had an existing business network, but there was an idea to change the partnership model, which would alter the business network in a similar way than in business network re-design situation described in chapter 1.

In the third phase, a new case study was selected to test the framework built in phase 2. The case was selected using similar criteria than the cases in phase 2. The selected case was a public sector where the Ministry of Environment asked the author to assist as a consultant in the planning of a new register in Finland (see table 5 and chapter 6 for details).

**Table 5.** Description of the case in phase 3

| Case | Description |
|---|---|
| Finnish Apartment Register, 2013-2014 | Planning of a new register for the Ministry of the Environment. The register enables electronic handling of apartments and their ownership information. |

### 3.3.2 Data Collection

The cases in phase 2 were past cases, which mean that the study was a retrospective one. According to Miller et al (1997), a retrospective study should involve remedies shown in table 6 in order to control for the impact of judgement processes on accounts of the past.

**Table 6.** Ways of improving retrospective studies adapted from Miller et al (1997)

| Issue | Advice |
|---|---|
| Reporting type | Use of free rather than forced reports (encourage to say if the informant does not remember) |
| Informants | Use multiple informants per organization (check against the information provided by other informants) |
| Focusing | Focus on simple facts and concrete events (to avoid cognitive and impression management) |
| Time span | Avoid discussions in distant past |
| Motivation | Motivate informants to provide accurate information: ensure confidentiality, minimize the duration and inconvenience of the data collection, and explain the usefulness of the project |
| Probe for adequateness | Probe to ensure that the original question was understood and the answer complete[4]. |

Interview method was chosen as the primary data collection method due to the nature of the research question and retrospective study. Secondary data such as project documents and working documents were used to support and validate interview data. The case projects involved several people each, but only a few persons who had the holistic view of the case and business network re-design. Two interviewees per case were selected (refer to table 7). The managers include the managers responsible of the business in the cases, and the managers who were responsible of the commercialization of the new business. The interviews started with a brief look on the available documentation (e.g. project plan of each case if available), and the interviews were held as semi-structured and open-ended interviews. All interviews were held in 2013. The topics in the interviews for cases in phase 2 included

- Business situation when the case was started
- Original objectives for the case
- Overview of the project (schedule, attendees, main tasks)
- Methods and principles used (in general)
- Business analysis and business development steps
- Key issues (problems, how they were solved, and success stories)
- The impact of the methods (increased/shared understanding of business issues)
- Project results
- Other issues pointed out by the interviewees.

[4] Miller et al (1997) advice ”to adhere to other guidelines generally associated with retrospective data collection”, and they refer to Huber & Power (1985). The most suitable advice of Huber & Power (1985) for the purpose of this research was added as the last row in the table.

**Table 7.** Empirical data in phase 2

| Case | Interviewees | Secondary data |
|---|---|---|
| Electronic election service, 2007 | • Service owner<br>• Director of SBU | Working documents, service presentation material |
| Election result service, 2008 | • Service owner<br>• Director of SBU | Working documents, service presentation material |
| Competitive bidding service, 2008-2009 | • Service owner<br>• Fellow manager | Working documents, service presentation material |
| Start-up with new payment management idea, 2009-2010 | • Senior advisor<br>• Consultant | Project plan, workshop materials, working documents |
| Real estate management consulting, 2009-2010 | • Managing director<br>• Consultant | Project plan, workshop materials, working documents, service description, service implementation documentation |
| Small IT consulting company, 2010-2011 | • Managing director<br>• Consultant | Project plan, workshop materials, working documents, service description |
| E-business framework, 2011-2012 | • Vice director<br>• Consultant | Project plan, workshop materials, working documents |
| Information services partnership model, 2012 | • IS manager<br>• Consultant | Project plan, workshop materials, working documents, information partnership development plan |

The interviewees were given a motivation about the importance of the research, and expression about the confidentiality of handling the answers and business information. The interviewees were guided to tell about facts and events, and they were encouraged to say if they cannot recall something. The interviewer was familiarized with the case in advance and ensured that all main issues were introduced, discussed and the answers were complete. The interviewer (the author) was also a co-consultant in the last six cases described in table 4, and he had prior understanding of these cases.

In all of the cases, the practitioners used some kind of a network re-design approach. However, they did not have any chosen framework or documented method during the cases.

Dataset 2 consists of data in different steps in phase 3 (action research). The data collection during the pre-understanding of the business situation and problem identification includes written documents, and meetings with project owner. The data collection during planning and action steps includes observations, written documents (working documents in the project), interviews of different actors and surveys to the project team.

The researcher's role in the action research was the role of the consultant who was responsible of the case project planning, workshop planning and implementation, business analyses and documentation. The Ministry of the Environment was the customer of the consulting case, and the program manager of the customer was the key person in deciding about the content and participants in the case project. In addition to the Ministry of Environment, three

other ministries attended also to the project, and their representatives attended in all decision-making meetings. There were also half a dozen other attendees in the case project, and about 25 external interviews in the business analysis phase in the case project.

The researcher adapted the framework built in phase 2 of the current research in the action research case in phase 3 to test how the framework can be applied within the new case. Even though the business network re-design framework was used in the case, the main objective in the case was to solve the customer's original business problem (making the plan for the new register). Furthermore, the customer and the attendees in the project influenced remarkably to the progress, the content and the results of the case project. The case project advanced based on the needs of the project, not rigidly based on the framework. However, the framework fit well with the case project, and there were no major conflicts between the framework and the case project.

The data collection during evaluation is based on interviews of the key stakeholders. The interviews were semi-structured regarding the following issues

- The background of the interviewee
- Business situation when the case was started
- Interviewee's objectives for the case
- Overall consideration of the progress of the project
- Development of the understanding of the business issues during the project
- Development of the shared understanding among the project team
- Evaluation of project results
- Other issues pointed out by the interviewee.

The interviewees were the program manager of the Ministry of the Environment, a specialist in the Ministry of Finance, and a consultant.

### 3.3.3 Data Analysis

Data was collected in phase 2 as the transcriptions of the interviews. The transcriptions were written in gisted level (key findings) because the need in the current research was rather to understand the phases and steps how the firms managed the business network re-design situation than recording the exact wording of the interviewees. However, the phrasing of the interviewees was always used. At the end of the interview, the answers were revised with the interviewee to ensure that the views of the interviewee were documented correctly. The interview results of each case were merged to create one view of each case.

Eisenhardt (1989) advises to analyze data in groups:

> The danger is that investigators reach premature and even false conclusions as a result of these information-processing biases. Thus, the key to good cross-case comparison is counteracting these tendencies by looking at the data in many di-

> vergent ways. One tactic is to select categories or dimensions, and then to look for within-group similarities coupled with intergroup differences.

The data in phase 2 was divided into three groups. First group included the cases in the large IT company, second group consisted of the cases with small companies and the third group included the public sector cases. Each group was analyzed separately as described later in this chapter.

The large IT company's first case (refer to table 4 on page 28) was taken first for analysis. The data analysis was carried out by using the interviewees' expressions of steps in business network re-design as the first order descriptions, and they were compared with the preliminary business network re-design framework themes found in phase 1 (based on the relevant literature). This procedure applies theory-driven coding (DeCuir-Gunby et al, 2011; Tuomi & Sarajärvi, 2002). If the issue rose by the interviewee fit with some of the theme in the preliminary framework, the theme was used as the second order description. If the issue was not found in the preliminary framework, a new theme was written based on the first order description. It was also possible that more than one first order descriptions referred to a second order description (theme), or one first order description referred to two themes at the same time. Based on the second order descriptions (themes), aggregate themes were developed to group the second order themes to reasonable groupings (phases) to match the case description. The first order descriptions, second order themes and aggregate themes were visualized using a presentation adapted from Gioia et al (2013) – refer to figure 11 for an example.

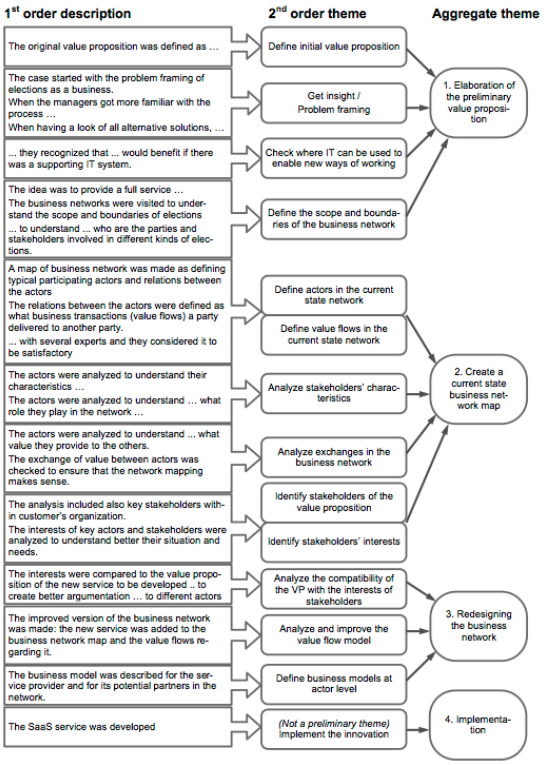



**Figure 11.** An example of visualization of the analysis in phase 2. Notation adapted from Gioia et al (2013) A larger picture can be seen in figure 13 on page 47.

The next case in the first group (the group of large IT company) was analyzed in a similar way, but the second order themes were the themes resulted from the first case. So, the second order themes and the aggregate themes were refined by the second case. Next, the same refinement was carried out by the third case in the group. After analyzing all the three cases in the group, a summary of the framework based on the first group was described.

The second group (the small companies) was handled in the same way as the first group starting with the preliminary business network re-design framework found in phase 1. In other words, the second group was analyzed independently from the first group. Next, the two newly developed frameworks (based on the first and the second group) were compared and merged into a joint framework. The two frameworks based on the two groups of cases were having enough of similarities and it was possible to merge them[5]. The cases in the third group were compared to the framework built by the first two groups, and the framework was just refined according to the findings. After all, the refined business network re-design framework was evaluated and compared with all of the cases (cross-case analysis).

The analysis in phase 3 considered how the framework refined in phase 2 was applicable in the action research phase. Verification with the framework in phase 2 was made. There were no major deviations found in phase 2, and no refining of the framework was made like in phase 2.

[5] If this would not had been the possible then a new analysis round would have been started by comparing the results and revising the original themes.

# 4. Phase 1, Preliminary Framework

In this chapter, the relevant literature is visited in order to get a theoretical view of the subject. The central topics of the research are value network analysis, business network design, and business reengineering. Moreover, the literature is analyzed to find aspects and themes for business network re-design.

## 4.1 Analyzing Aspects and Themes

As mentioned earlier in the literature review, the extant literature presents some methods for business analysis and business development. They are suitable as partial solutions for business network re-design, but a comprehensive and coherent set of methods or a framework is still missing.

The idea of the analysis in this chapter is to identify concepts that are relevant for business network re-design approach. Because value network analysis, designing ecosystems and business reengineering are considered to be suitable as partial solutions for business network re-design, the aspects found in the extant literature are studied to find out potential themes that are expected to occur as parts or steps also in business network re-design approach. We revisit the literature of value network analysis, designing ecosystems and business reengineering (refer to figure 8 on page 20), and analyze how they could be used in business network re-design situations.

Value network analysis and designing ecosystems concern business networks primarily. Thus, they are suitable as such to describe how to manage business networks related analysis and design issues. However, business reengineering regards originally business processes, not business networks. Therefore, it requires a bit more interpretation to be applied to business networks.

The aspects and themes of value network analysis, designing ecosystems and business reengineering are considered in chapters 4.1.1, 4.1.2, and 4.1.3. They are summarized and merged into one set of aspects and themes in chapter 4.2.

### 4.1.1 Aspects and Themes from Value Network Analysis

Value network analysis concentrates in analyzing the current state of a business network. The aspects and themes regarding current state network analysis are suitable in the way they are for business network re-design (refer to table 8 on the next page). There are also some aspects and themes for improv-

ing business networks that are also applicable to business network re-design. The improvement issues are not very precise; they are described more on general level. Therefore, they need to be applied and specified for business network re-design when merging the aspects and themes or during the phase 2 in the current research when the case studies are reflected with the themes.

The themes in table 8 are the same as in figure 8 on page 20; the descriptions in figure 8 are just more concise. The phase "create current state map" starts with defining the scope and boundaries of the business network, which is analyzed. It is necessary to delimit the scope, because business networks are linked to each other and the analysis needs to be focused to the relevant business domain. Defining roles or participants in the current state network refers to defining the actors in the business network.

In value network analysis, it is possible to use non-occupied roles as well as specified participants as actors. Defining transactions refers to defining the value exchanges between the actors (same as term "define value flows" in designing ecosystems approach). Validate the business network map for completeness stands for validating that all actors and all relevant value flows have been taken into account – i.e. the map makes sense for each actor and for the whole system.

The analyzing current state phase has different options. The exchange analysis makes an investigation of the general pattern of the exchanges in the network. For example, it is analyzed if there is proper reciprocity in exchanges, if there are weak or inefficient links, or what it requires to make an exchange to work properly. Impact analysis is used for verifying how an involved party can create value from the received inputs. Value creation and sharing analysis assesses the value increases made by an actor and how the actor itself benefits from it. Analyzing perceived value refers to analyzing how different actors perceive the value they get from other actors.

**Table 8.** Themes in value network analysis

| Phase (aspect) | Theme |
|---|---|
| Create current state map | Define the scope and boundaries of the business network |
| | Define roles or participants in the current state network |
| | Define transactions in the current state network |
| | Validate the business network map for completeness |
| Analyze current state map | Analyze exchanges in the business network |
| | Impact analysis (how an actor create value from its inputs) |
| | Analyze value creation and sharing |
| | Analyze perceived value |
| Optimize the network | Optimize value flows |
| | Make improvements to the network |
| | Eliminate unnecessary roles from the network |

Allee and Schwabe (2015) refer also to some optimizing or improvement issues for the business network. They mention to make improvements to the network and eliminating unnecessary roles. However, they do not give specify exactly how to carry out these tasks. Therefore, the specification will most probably take place when the real life case studies are analyzed (i.e. in phase 2 in the current research).

All the aspects and themes are described more in detail by Allee and Schwabe (2015, pp. 29-52 and 65-101).

### 4.1.2 Aspects and Themes from Designing Ecosystems

Designing ecosystems is probably the closest approach compared with business network re-design. It concentrates in creating a new business network from scratch, which is quite close to re-designing a business network. The difference is that it lacks the current state business network analysis, and the designing of the ecosystem does not utilize any pre-existing business networks. The aspects and themes found in designing ecosystems are expressed in table 9.

Inspiration phase starts with understanding the challenge – understanding what is the problem to be solved. Getting insight means to gain the understanding of the customer's (user's and buyer's) situation. Problem framing refers to reformulating problems and making them explicit. Defining initial value proposition means to capture the core elements of the business in a coherent description. It describes e.g. for whom value is created, what are the needs, what is offered as a solution, and what are the differentiators.

Select parties for ideation phase refers to co-ideating and co-designing the ecosystem with other parties who have relevant knowledge about the business domain. Identifying and understanding potential parties refers to find out who has knowledge about the business and who could be proper co-designers. Select parties for ideation means creating a project team with other parties for designing the ecosystem. Creating alternative solutions is the first co-designing task, which aims to finding better approaches to solve the problem. Enriching value proposition refers to describing the enhanced solution as a new value proposition.

The idea of identifying stakeholders phase is to identify the relevant actors in the business network. It starts with identifying the stakeholders (customers, the ones who influence or are influenced by the value proposition, and parties needed to execute the value proposition). Analyzing stakeholders' characteristics refers to understanding the stakes each actor has in the business network. Analyzing interests involves issues like power and influence, position and predictability of behavior of different stakeholders. Analyzing the compatibility of the value proposition with the interests of stakeholders is a theme, which used both to select the actors' roles in the network and developing the value proposition. Defining stakeholder management strategies refers to defining the ways to get relevant stakeholders committed to the new ecosystem.

**Table 9.** Themes in designing ecosystems (adapted from Den Ouden, 2012)

| Phase (aspect) | Theme |
|---|---|
| Inspiration | Understand the challenge |
| | Get insight |
| | Problem framing |
| | Define initial value proposition |
| Select parties for ideation | Identify and understand potential parties |
| | Select parties for ideation |
| | Create alternative solutions |
| | Enrich value proposition |
| Identify stakeholders | Identify stakeholders of the value proposition |
| | Analyze stakeholders' characteristics |
| | Identify stakeholders' interests |
| | Analyze the compatibility of the value proposition with the interests of stakeholders |
| | Define stakeholder management strategies |
| Define roles and value flows | Define actors as roles |
| | Create value flows |
| | Analyze and improve the value flow model |
| | Define business models at actor level |
| Select parties for implementation | Select first pick of parties for implementation |
| | Define selection criteria and options for other parties |
| | Carry out screening for other parties |
| | Develop engagement strategy |
| | Approach the organizations and build commitment |
| | Adapt the value flow model |
| | Balance value for all parties |

Define roles and value flows phase has similarities with the creating current state map of value network analysis, but here it refers to creating the map of the new business network. Define actors as roles theme denotes defining the actor in the business network map as non-occupied roles instead of specified (named) parties. Create value flows stands for drawing the value exchanges to the business network map. Analyze and improve the value flow theme includes issues like validating completeness, sequence and reciprocity, and checking the transaction governance and scalability of the ecosystem. The idea of defining business models at actor level is to ensure that each actor in the ecosystem has a business model that fits with its intended role.

Select parties for implementation is the final phase for realizing the ecosystem. The idea of select first pick of parties for implementation step is to provide role for the parties who were involved in the co-ideation and co-design of the ecosystem. Define selection criteria and options for other parties and screening for other parties are then the steps to select the remaining members for the new ecosystem. Approach the organizations and build commitment refers to finally occupying the actors roles in the ecosystem. Balance value for all parties is needed to ensure the coherence and stability of the network. The business network map created earlier may need adjusting when new members are selected to the ecosystem. The new actors may have a bit different business

models or motivations than what was expected. The ecosystem is also not constant, it may evolve in time and this requires also balancing value for all parties.

All the aspects and themes are described more in detail by Den Ouden (2012, pp. 108-122 and 153-185).

### 4.1.3 Aspects and Themes from Business Reengineering

Analyzing the aspects and themes of business reengineering is trickier than that of value network analysis and designing ecosystems. Business reengineering originally concerns processes within one firm, not business networks. However, Hewitt (1994) and Venkatraman (1994) propose that business reengineering can be applied to business networks, too (refer to chapter 2.5). Unfortunately, there is no exact description how to execute business reengineering on business network level. Thus, we need to interpret the typical phases and steps to the business network situation (see table 10 below).

Business reengineering typically starts with understanding the key business processes of the firm (defining the organization level process map and describing the outline of each process), and then choosing one or more processes for reengineering. Applying these themes to business networks means that we start with a helicopter-view of the business regarding business networks and then choose where to start reengineering. Three candidates for themes are suggested here. First step is to identify relevant business networks regarding the business domain we are interested in. A firm is connected to at least one business network if it has at least one customer. It may be involved in many networks that may also be overlapping to some extent. Second, an outline of each business network is described. Third, the most promising business networks are selected for reengineering.

Business process reengineering continues with understanding the selected process (or processes) and customer needs: what the process does, how well it performs, and what are the critical issues. The corresponding suggested themes for business networks have also similar viewpoints for analyzing the network: analyze what the business network does, how well it performs, and what are the critical issues for the business network.

In business process reengineering, inventing the new process aspect has three themes: work around outcomes (of the process), reinvent rather than improve, and check where information technology can be used to enable new ways of working. When applying to business networks, the first one is suggested to be: work around outcomes and value exchanges. The definition is enlarged to value exchanges, because they describe the value (outcomes) that one actor provides to another. The two other themes are left in the original format.

**Table 10.** Themes in business reengineering

| Phase (aspect) | Theme |
|---|---|
| Outline and choose business networks | Identify business networks regarding the business domain |
| | Describe an outline of each business network |
| | Select most promising business networks for reengineering |
| Understand the network and customer needs | Analyze what the business network does |
| | Analyze how well the business network performs |
| | Analyze critical issues |
| Improve the business network | Work around outcomes and value exchanges |
| | Redesign rather than improve |
| | Check where IT can be used to enable new ways of working |
| Implement the new network | Define change management strategy |
| | Deploy the new business network |
| | Communicate about the change |
| | Negotiate about business roles with other actors |

Implementation of the process in business process reengineering has three themes: define the change management strategy, deploy the new process and continuous communication. For business networks, the first theme remains the same. The second is interpreted as deploy the new business network. The third is divided into two: communicate about the change and negotiate about business roles with other actors. The former in a more general theme, and the latter refers to applying communications with other actors in the business network.

## 4.2 Summary of Aspects and Themes for the Re-design Approach

The analysis concerned the aspects and themes found in extant literature. Different themes were identified from value network analysis, designing ecosystems and business reengineering, and they were applied to fit with business network re-design approach. There are total of 47 themes extracted from the extant literature (refer to tables 8, 9 and 10).

Some of the aspects and themes are overlapping. Here, the aspects and themes are summarized and merged into one summary table (see table 11 on the page 42). The aspects and themes are sorted into a sensible order – i.e. what is the order that could be expected to take place in business re-design. Even though the summary table may look like a list of phases and steps to be executed, it is not such a framework to describe how to carry out business network re-design. It is simply a list of aspects and themes that are candidates for business network re-design. It is not known which of them are suitable, what is the correct order of applying the themes, or are there some other themes required in addition to the one in the summary table.

The first aspect and the corresponding themes in table 11 come directly from designing ecosystems approach (see table 9 in chapter 4.1.2), the second from business reengineering (refer to table 10 in chapter 4.1.3), and the third one

from value network analysis (table 8 in chapter 4.1.1). Some themes are renamed to be coherent with other themes: “define roles or participants in the current state network” is renamed as “define actors in the current state network”, and “define transactions in the current state network” is renamed as “define value flows in the current state network”.

The fourth aspect and its themes are derived from business reengineering. The first theme merges two themes from business reengineering (“analyze what the business network does” and “analyze how well the business network performs”). The new theme is called “understand the context of the business network(s)”. The value exchanges describe what the network does, and value exchanges and relationships together how the network performs. The second theme (“analyze critical issues”) comes from business reengineering as such.

The fifth and the sixth aspects (select parties for ideation and identify stakeholders) come from designing ecosystems directly. The next aspect is derived from value network analysis directly (analyze current state map), but “impact analysis” and “analyze value creation and sharing” are merged to “analyze how actor creates and shares value”. The following (improve the business network) is acquired from business reengineering. The aspect of “define roles and value flows” is based on designing ecosystems (table 9), but it also includes some themes from value network analysis (“eliminate unnecessary roles from the network”). Theme “analyze and improve the value flow model” is considered to include theme “make improvements to the network” from value network analysis.

The last aspect combines the implementation aspects from designing ecosystems and business reengineering. Theme “approach the organizations and build commitment” is considered to be essentially the same as “negotiate about business roles with other actors” (theme from business reengineering is merged, here). Theme “deploy the business network” (from business reengineering) is considered to be included in the theme of “adapt the new business network”.

**Table 11.** Themes extracted from different aspects

| Aspect | Theme |
|---|---|
| Inspiration | Understand the challenge |
| | Get insight |
| | Problem framing |
| | Define initial value proposition |
| Outline and choose business networks | Identify business networks regarding the business domain |
| | Describe an outline of each business network |
| | Select most promising business networks for reengineering |
| Create current state map | Define the scope and boundaries of the business network |
| | Define actors in the current state network |
| | Define value flows in the current state network |
| | Validate the business network map for completeness |
| Understand the network and customer needs | Understand the context of the business network(s) |
| | Analyze critical issues |
| Select parties for ideation | Identify and understand potential parties |
| | Select parties for ideation |
| | Create alternative solutions |
| | Enrich value proposition |
| Identify stakeholders | Identify stakeholders of the value proposition |
| | Analyze stakeholders' characteristics |
| | Identify stakeholders' interests |
| | Analyze the compatibility of the value proposition with the interests of stakeholders |
| | Define stakeholder management strategies |
| Analyze current state map | Analyze exchanges in the business network |
| | Analyze how actor creates and shares value |
| | Analyze perceived value |
| Improve the business network | Work around outcomes and value exchanges |
| | Redesign rather than improve |
| | Check where IT can be used to enable new ways of working |
| Define roles and value flows | Define actors as roles |
| | Create value flows |
| | Analyze and improve the value flow model |
| | Eliminate unnecessary roles from the network |
| | Define business models at actor level |
| Implement the new network | Define change management strategy |
| | Select first pick of parties for implementation |
| | Define selection criteria and options for other parties |
| | Carry out screening for other parties |
| | Develop engagement strategy |
| | Communicate about the change |
| | Approach the organizations and build commitment |
| | Adapt the new business network |
| | Balance value for all parties |

# 5. Phase 2, Refining the Framework with Empirical Cases

The research problem is to evaluate the how business network re-design operates in practice, and the aim of the research is to create a framework for business network re-design. The framework building is described in this chapter.

## 5.1 Case Studies in Phase 2

Even though the literature of designing ecosystems mentioned in chapter 2 has been written in early 2010's, there is experience about business network re-design in projects carried out some years earlier. There are empirical experiences found in eight cases carried out between 2007 and 2012 (see table 4 on page 28).

The cases have been both business cases carried out managers within companies and consulting cases where a consultant has helped firms to manage the business network re-design. The case study is based on interviewing the practitioners and the stakeholders regarding the business cases. This gives a clear picture of the experience.

The cases are divided into three groups in the case study. First group involves three cases with a large IT company, second group has three cases with small firms, and third group has two cases with public sector organizations. The case descriptions are given in subchapters 5.2, 5.3 and 5.4 for the three groups accordingly. For each case within the group the following issues are described:

- Case background
- Key business network analysis and re-design issues
- Results of business development
- Business network re-design issues

A tentative business network re-design framework is produced based on the findings of the first group and another tentative framework based on the second group. Next, the two tentative frameworks are compared and a synthesis of them is made. Last, the business network re-design framework is refined using the cases in the third group (see figure 12).

At the end of chapter 5.5, the business network re-design framework is presented, and it is compared with relevant literature. Moreover, the framework is

compared with all cases using a cross-case analysis. Answers to research questions based on the second phase of the current research are also given in this chapter.

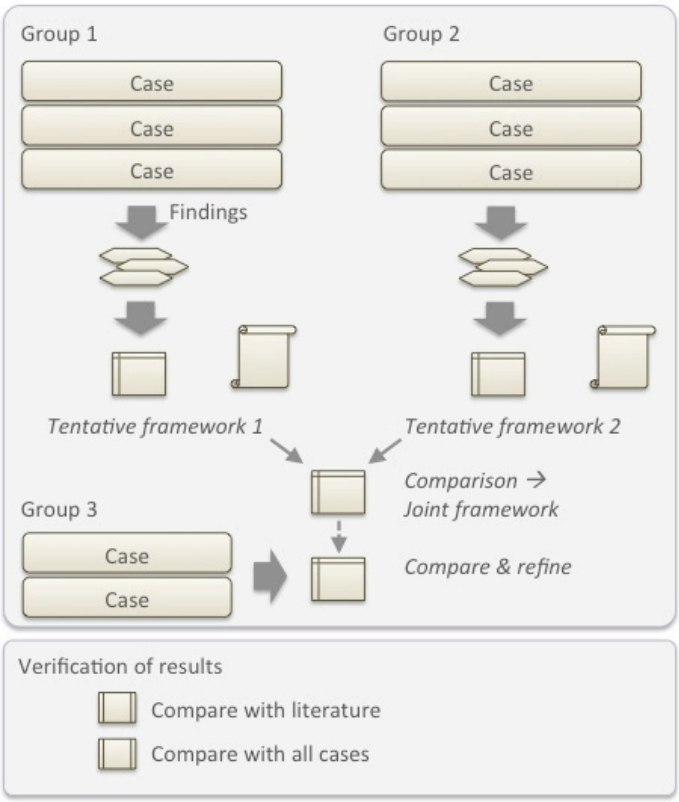



**Figure 12.** Case study process in phase 2

## 5.2 Cases with Large IT Company

Three cases concerned a large IT company that wanted to launch a new business line. The company had traditionally been working in IT projects and giving IT infrastructure services to its customers. The idea of the new business line was to offer a portfolio of services that are closer to the customers' business – not IT projects. The service portfolio of the new business line consisted mainly of consulting and SaaS services.

The three cases regarded three different SaaS services within one company (three separate cases). The software-as-a-service type services are turnkey solutions for customers where the service provider offers software applications in a hosted environment, and fees are based on the usage of the application – it is a subscription based pricing model (Luoma & Rönkkö, 2011). The customer is not offered an IT project to implement a customer-specific application. Instead, the service provider is responsible to develop, implement, maintain and host the application. The customer just makes use of the application.

When designing a SaaS service, the service provider has to understand the customer industry, its conditions, and other suppliers in the industry. This was

a totally new situation for an IT company, who had traditionally been interested in IT projects solely. Thus, the IT company had to understand the business networks in the new situation, and try to find a proper position within the network for its own services. All the three business network re-design cases were carried out by managers within the IT company.

### 5.2.1 Electronic Election Service

*Case background*

The company had implemented IT systems related to elections to the Ministry of Justice of Finland, and thus had competence regarding elections. Previously, the company had regarded the business just as project deliveries to the specific customer only. This time, the idea was to provide a SaaS service to all customers interested in elections.

*Key business network analysis and re-design issues*

The original value proposition was defined as handling of voting and counting of results in elections. The case started with the problem framing of election as a business. The first feedback within the company was that all election business is about the state and municipal elections only (organized by the ministry). When having a look of all alternative solutions, it revealed that there are also a number of other elections: co-operatives, trade unions, private companies and associations (annual general meetings) and the house of church. When the managers got more familiar with the process of carrying out an election, they recognized that there are many tasks in the preparation phase that would benefit if there was a supporting IT system. The idea was to provide a full service from planning an election to releasing the results of the election. Next, the business networks were visited to understand the scope and boundaries of elections, and who are the parties and stakeholders involved in different kinds of elections. A map of business network was made as defining typical participating actors and relations between the actors regarding organizing and carrying out an election. The relations between the actors were defined as what business transactions (value flows) a party delivered to another party. The business network was discussed with several experts and they considered it to be satisfactory.

The actors were analyzed to understand their characteristics, what role they play in the network and what value they provide to the others. The exchange of value between actors was checked to ensure that the network mapping makes sense. The analysis included also key stakeholders within customer's organization. The interests of key actors and stakeholders were analyzed to understand better their situation and needs. The interests were compared to the value proposition of the new service to be developed, and it helped to create better argumentation for the service to different actors and stakeholders.

Next, the improved version of the business network was made: the new service was added to the business network map and the value flows regarding it.

The business model was described for the service provider and for its potential partners in the network. The analysis showed that there are some potential subcontractors for printing, mailing and scanning in postal elections, but in electronic elections they were not needed.

*Results of business development*

The SaaS service was developed and two customers started using this service (a co-operative and a trade union) within one year since the SaaS service was published. The service supported the whole election process, enabled both e-voting and postal voting, and offered official reports regarding the election process and results. Furthermore, the service included some consulting services assisting the customer to start using the SaaS service.

According to the practitioners, business network re-design approach made it easier to understand the market and what kind of a value proposition would solve all the key challenges the customers had, and what other actors could be used as partners.

*Business Network Re-design Issues*

The first case considered election service. To analyze how business network re-design was carried out, we have to look for the progress of the case excluding the references to the specific domain and specific case (election service). The first order descriptions that describe the re-design process are shown in figure 13. The figure contains also the proposed second order and the aggregate themes. The second order themes are based on the themes described in the analysis of relevant literature in phase 1 of the current research (refer to table 11 on page 42). If a 2nd order theme cannot be connected to a theme in table 11, it is marked as "(Not a preliminary theme)" in figure 13. An aggregate theme stands for a set of 2nd order themes that compound a coherent group. The aggregate themes can be seen as the phases in business network re-design framework, and the 2nd order themes as steps in the phases.

According to figure 13, the first phase in business network re-design includes defining initial value proposition, getting insight, problem framing, checking where IT can be used to enable new ways of working, and defining the scope and boundaries of the business network. The purpose is to get the outline of target market: what kind of business and what actors should be included in the analysis.

In the second phase in business network re-design, a current state business network map is created. It includes steps for defining actors and value flows in the current state network, analyze stakeholders' (actors') characteristics, analyze exchanges in the business network, identifying stakeholders of the value proposition and their interests. Identifying stakeholders is mentioned later than analyzing stakeholders' characteristics, which looks odd. The explanation is that the analysis of characteristics regards actors (e.g. firms) and the identifying of stakeholders concerns stakeholders within key actors' boundaries.

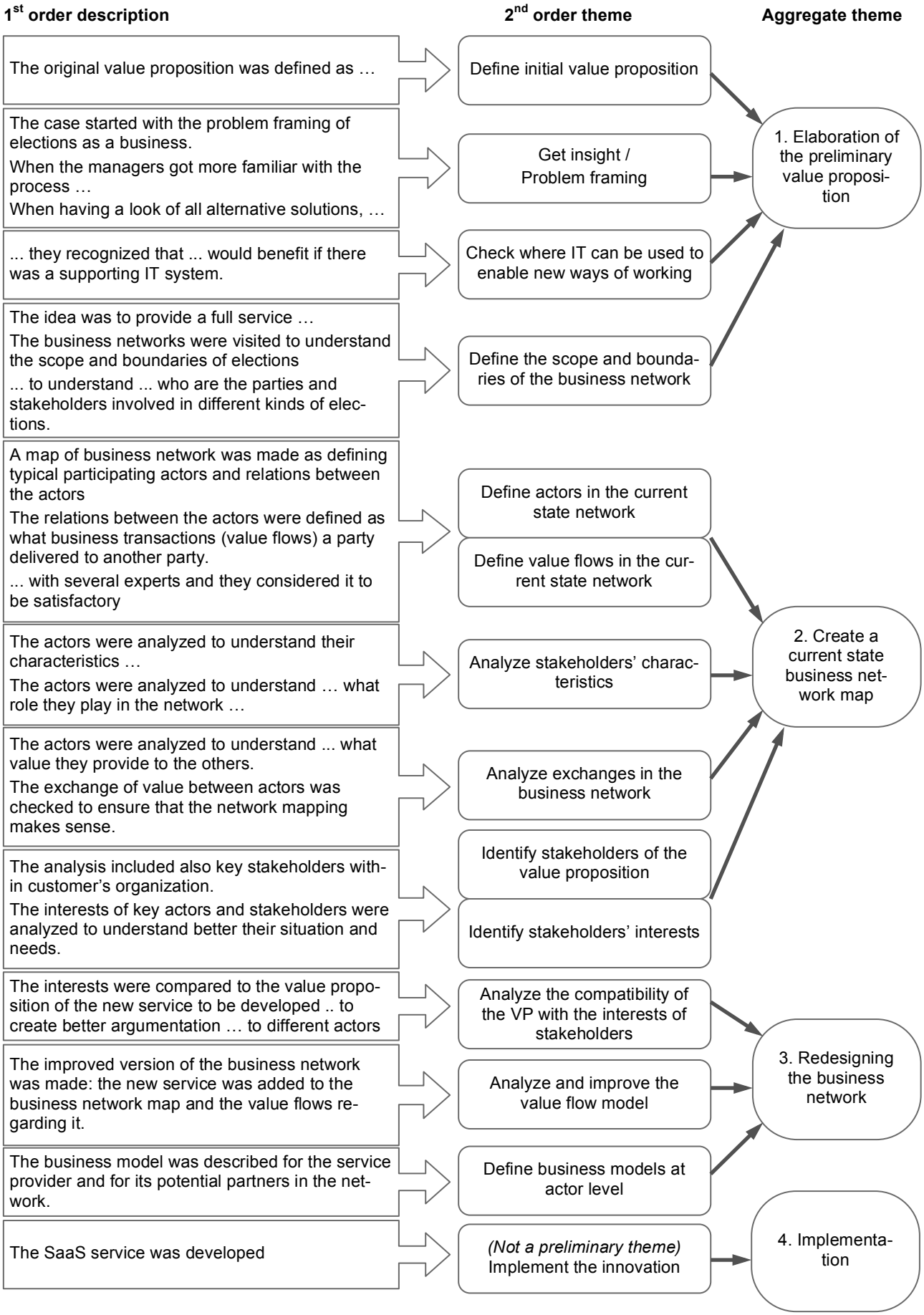



**Figure 13.** Analysis of the election service case. Notation adapted from Gioia et al (2013).

This suggests that "analyze stakeholders' characteristics" could be replaced with "analyze actors' characteristics" if the same finding appear in other cases, too. The purpose of the phase is to get a clear understanding how the market operates before introducing the innovation into the market. The interviewees emphasized that it is important to start with understanding the circumstances outside the firm – instead of starting from the firm itself, and trying to compose a network around its innovation.

In the next phase, the business network is redesigned. The best matching preliminary theme (in table 11 on page 42) is to analyze the compatibility of the value proposition with the interests of the stakeholders. However, the issue here is rather to adjust the value proposition to match the interests of the stakeholders rather than vice versa. The step could be renamed if the other cases have similar findings. The best fitting preliminary theme for the next step is analyze and improve the value flow model, which a bit general description. Here, it was mentioned that the new entrant was added to the business network map and corresponding value flows were drawn. It is also suggested to specify the improvement effort if the findings with the next cases support this. Third step is to define business models at actor level. To be more specific, the business models were defined only for the new entrant and the actors who are the closest related to it.

In the last phase, the firm with the innovation prepares implementing the business plan.

### 5.2.2 Election Result Service

*Case background*

The business situation in this case was a continuation to the one presented in the previous chapter (5.2.1) – it concerned the same IT company that had the electronic election service. The case regarded publishing of election results real time as the counting of votes proceeds. Here, it was possible to find new business opportunity in a case that was used to consider as an unattractive one. The director of the new services business within the Finnish sub business unit pointed out this fact:

> Another company contacted our company to have a common business case regarding election results handling. Several sub business units, who saw no project business here that would have been profitable enough, rejected this initiative before we heard about it. After a proper analysis with network approach, we understood that this was not a project case with us as the only provider and one paying customer, but a service having many different actors as customers and three organizations providing the service. Many people in our organization were skeptical with this new service, but we were able to show them that it really works both technically and in business terms. The service was implemented and the network behind it was established, and we got a really good business up and running.

*Key business network analysis and re-design issues*

The initial idea regarded how to publish election results as the counting of votes proceeds using a web portal. The idea came from a partner that provides information services to local newspapers, who cannot afford to their own result publishing systems. The idea was to provide a service for the newspapers that could then attract their readers to follow up if their own candidates are getting elected or not – and which party is getting the most of the votes in each municipality. The electronic election service (see chapter 5.2.1) needed also a result service. Therefore developing this kind of a service could be beneficial later used with the election service. However, before getting a permission to go on with the result service, the top management wanted to see a business case analysis.

The analysis started with understanding the business of election result service and who are the actors and their challenges in this case. During this analysis, an alternative idea of a push service was found: a subscriber could get a SMS message every half an hour about the status of his or her favorite candidate. The original idea of result service portal was enriched with the push service that could be subscribed via the web portal. The analysis revealed half a dozen actors actually compounded from a two separate sub networks. The analysis was continued with value flows (what value is exchanged between the actors) and the role of different actors. The network mapping was ensured to be consistent and complete.

The characteristics and interests of all actors were described. The value proposition was revisited to improve it to match the interests of different actors and stakeholders. Based on this, it was possible to find position for the IT company in the network and business models for all of the commercial actors, including the IT company developing the SaaS service. Here, the earning logic for the IT company was based on getting payments from many different sources – in contrast to a typical IT project where one customer pays all the project costs. This meant also that there had to be different value propositions for different actors.

Business partners were selected and an engagement strategy was defined for each of them. The selected partners were approached, and agreements negotiated with them. The negotiations were based on adapting the network model created in the business case analysis. The negotiations caused some minor changes to the network map. During the negotiations it was ensured that a balance in value sharing in the network is still valid.

*Results of business development*

The SaaS service was developed and launched. The development required continuous communications with key partners to ensure that the SaaS service and the activities of the partners were in line. The service included an election result web application for newspapers' web sites, a SMS service for candidates and citizens, and supporting services for newspapers how to implement the web application to their web sites. The service was used as planned in the mu-

nicipal elections in the same year, and the income of the service covered the investments of the service. In other words, the first usage of the service was so successful that the investment was paid back, and the service was ready to be used with next elections.

There were about nine months from the initiative to the election day, and the development, implementation and testing would take about seven months. Moreover, the executives in the IT company were skeptical to the service. There was only two months time to find a proper business model and convince the executives. Using the business network re-design approach, it was possible to find a balanced business network that shared value for all actors and that described an applicable business opportunity for the IT company. Without a business network thinking it would not had been possible to find any profitable business.

*Business Network Re-design Issues*

The first order descriptions of the second case (election result service) are shown in table 12. The table shows also what are the corresponding 2nd order theme and a suggestion for changes in the 2nd order themes if any. Because the second case is a continuation to the first one, most of the second order themes found in the first case are applicable to the second case. If themes found in the first case do not fit, new themes from the literature review (see table 11) are applied if possible. The aggregate themes remained the same as in the first case, but there are some changes and additions to the second order themes (steps in the tentative business network framework).

In the second case, creating alternative solutions for the initial value proposition is pointed out quite clear. Actually, it is also mentioned in the first case a phrase “having look at other alternatives”. Thus, it is suggested to add a new step (2nd order theme) “Create alternative solutions”.

It is also stated clearly that the value proposition was enriched. Again, it has been mentioned also in the first case that the original idea of handling voting was changed to the idea of full service from planning elections until releasing results. In other words, it is mentioned that the value proposition was enriched also in the first case. It is suggested to add a new step “Enrich value proposition”.

There was no direct mention of step “Check where IT can be used to enable new ways of working” in the second case. All the first three cases concern a SaaS service, and it is obvious that they always concern how to utilize IT. However, it is likely that the business network re-design does not need a step like this. The step is a suspect to be removed from the framework unless there are finding regarding it also in the cases that do not consider development of IT services like SaaS services.

**Table 12.** Analysis of election result service compared to the tentative framework.

| 1st order description | 2nd order theme | Comment |
|---|---|---|
| The initial idea regarded how to publish election results | Define initial value proposition | – |
| The idea was to provide a service for … | Define initial value proposition | – |
| … understanding the business of election result service | Get insight | – |
| … understanding … who are the actors and their challenges in this case | Get insight / Problem framing | – |
| An alternative idea of a push service was found | Create alternative solutions | New step suggested |
| The original idea of result service portal was enriched | Enrich value proposition | New step suggested |
| – | Check where IT can be used to enable … | Not directly mentioned, it is uncertain to keep this step in framework |
| The analysis revealed half a dozen actors actually compounded from a two separate sub networks | Define the scope and boundaries of the business network | – |
| Analysis of value flows (what value is exchanged between the actors) | Define actors / define value flows in current state network | Matches with two preliminary themes |
| The network mapping was ensured to be consistent and complete | Validate the business network map for completeness | New step suggested |
| The characteristics and interests of all actors were described | Identify stakeholders of the VP / Identify stakeholders' interests | Matches with two preliminary themes |
| Analysis of … the role of different actors | Analyze stakeholders' characteristics | – |
| The value proposition was revisited to improve it to match the interests of different actors and stakeholders | Analyze the compatibility of the VP with the interests of stakeholders | The step could be renamed as "Revisit the value proposition" |
| Different value propositions for different actors | Analyze the compatibility of the VP with the interests of stakeholders | (same as above) |
| … find position for the IT company in the network and business models for all of the commercial actors … | Analyze and improve the value flow model / Define business models at actor level | Matches with two themes. Both steps could be renamed to have more specific steps (the themes are described with general terms) |
| The SaaS service was developed and launched | Implement the innovation *(not a preliminary theme)* | – |
| Business partners were selected and an engagement strategy was defined for each of them | Select first pick of parties for implementation / Carry out screening for other parties / develop an engagement strategy | New step suggested / matches to three preliminary themes but the two first do not fit well here. |
| The selected partners were approached, and agreements negotiated with them | Approach the organizations and build commitment | New step suggested |
| The negotiations were based on adapting the network model | Adapt the new business network | New step suggested |
| The negotiations caused some minor changes to the network map. | Adapt the new business network | (same as above) |
| It was ensured that a balance in value sharing in the network is still valid | Adapt the new business network | (same as above) |
| The development required continuous communications with key partners | Communicate about the change / balance value for all parties | New step suggested / matches to two preliminary themes |

The second phase “Create current state business network map” fits well with the findings of the second case. A new step of “validate the business network map for completeness” was added. The first step of the third phase is “Analyze the compatibility of the value proposition with the interests of stakeholders”. Like in the first case, this regarded a situation where the value proposition is changed if needed due to the interests of the key actors in the business network. Therefore, it is obvious to specify the step by renaming it as “Revisit the value proposition”. The next step is to analyze and improve the value flow model. Like in the first case, the improvement of the business network regards the new entrant. Thus, it is suggested to specify the step as “add the new entrant to the business network map”. The next step is “describe business models on actor level”. However, it is said in the second case that a business model is defined for commercial actors – which refers to the new entrant and its partners or other actors who are connected to the new entrant in the business network map. It is suggested to rename the step as “Describe the business model for the new entrant and related actors”.

The implementation phase was very limited in the first case. The second case has a broader view to implementation. The findings suggest adding new steps: select first pick, carry out screening for other partners, develop engagement strategy, approach the organizations and build commitment, adapt the business network, communicate about the change, and balance value for all parties. However, there is no first pick separately from other parties. Thus it is suggested that there is just one new step “select business partners” instead.

### 5.2.3 Competitive Bidding Service

*Case background*

This case concerned the same large IT company as the two previous cases (see chapters 5.2.1 and 5.2.2). There was a change in the legislation of public procurements causing more detailed rules for competitive bidding. This was a challenge both for public organizations and companies providing services to public sector. Public sector tender handling became even more labor-intensive paper work based on a process with strict rules.

*Key business network analysis and re-design issues*

The managers at the IT company noticed that the change in legislation is an opportunity for a new SaaS service: there are hundreds of public organizations with similar needs regarding competitive bidding process. It is possible to develop an application that supports the process, and to provide it to all public organizations using a subscription based pricing model. The preliminary value proposition considered a SaaS service that supports the competitive bidding process. The managers started familiarizing with the procurement and competitive bidding legislation, practices and policies in different kinds of organizations to understand procurement and challenges regarding it in the real world.

At first glance, the situation seemed quite simple: there is just a public organization that makes a procurement using competitive bidding rules. A deeper look at parties and stakeholders revealed that there are many internal stakeholders within the public organization and many times external experts assisting in the competitive bidding process. There are also private companies that attend to the competitive bidding by making proposals to the public organization according to the request for proposal. All these parties were defined as actors in the business network. Next, the relations of different actors were mapped as a network diagram showing the transactions what value the actors provide to each other. The whole network map was validated for completeness. Each actor was analyzed more in detail to see what characteristics, needs and interest they have.

The value proposition and functionality of the SaaS service was adjusted to match the key needs and interests of the actors in the business network. The SaaS service was added to the business network map, and corresponding value flows were added. Public organizations were considered as the key customers for the SaaS service. However, some private companies like public tender consultants were found as enablers for the SaaS service and thus as potential partners for the IT company later on. The business model of the SaaS service was set to fit the business models of other key parties in the business network.

*Results of business development*

The SaaS service was developed and a pilot customer started using it already during the development period. The service included management of the bidding process, a web site to share information and receive proposals. A roadmap was made for the development of the service to support all needs of different actors. Using business network re-design approach made it easier to understand the needs of different actors and how to develop the SaaS service to suit for the new business domain. Furthermore, the approach made it possible to identify potential partners for the new business. One potential partner was selected and an engagement strategy was prepared. The partner was contacted but no agreement was made.

*Business Network Re-design Issues*

The first order descriptions of the third case (competitive bidding service) are shown in table 13. The table shows also what are the corresponding 2nd order theme and a suggestion for changes in the 2nd order themes if any.

The findings in the third case match the first phase (elaboration of the preliminary value proposition) in the framework very well: there are no suggested changes. The second phase (create a current state business network map) was also followed in the third case in the same way as in the second case. Step “analyze stakeholders’ characteristics” refers here also rather to actors than stakeholders within actors’ boundaries. Thus, it is suggested to rename the step as “analyze actors’ characteristics”.

**Table 13.** Analysis of competitive bidding service vs. the tentative framework.

| 1st order description | 2nd order theme | Comment |
|---|---|---|
| The managers at the IT company noticed ... an opportunity for a new SaaS service | Define initial value proposition | – |
| The preliminary value proposition considered a SaaS service | Define initial value proposition | – |
| The managers started familiarizing with … to understand procurement and challenges regarding it in the real world | Get insight / problem framing | Matches with two preliminary themes |
| A deeper look at parties and stakeholders revealed that there are many internal stakeholders within the public organization and many times external experts … There are also private companies that attend to | Define the scope and boundaries of the business network | – |
| All these parties were defined as actors in the business network | Define actors in the current state network | – |
| The relations of different actors were mapped as a network diagram showing the transactions what value the actors provide to each other | Define value flows in the current state network | – |
| The whole network map was validated for completeness | Validate the business network map for completeness | – |
| Each actor was analyzed more in detail to see what characteristics, needs and interest they have | Identify stakeholders of the VP / Analyze stakeholders' characteristics / Identify stakeholders' interests | Three matching preliminary themes Analyze stakeholders' characteristics is suggested to be renamed as analyze actors' characteristics |
| The value proposition and functionality of the SaaS service was adjusted to match the key needs and interests of the actors in the business network | Revisit the value proposition | The step renamed with the earlier cases is valid also for this case |
| The SaaS service was added to the business network map, and corresponding value flows were added | Add the new entrant to the business network map | The step renamed with the earlier cases is valid also for this case |
| Public organizations were considered as the key customers … some private companies ... were found … as potential partners | Describe the business model for the new entrant and related actors | The step renamed with the earlier cases is valid also for this case |
| The business model of the SaaS service was set to fit the business models of other key parties in the business network | Describe the business model for the new entrant and related actors | – |
| The SaaS service was developed | Implement the innovation | – |
| One potential partner was selected and an engagement strategy was prepared | Select business partners / develop an engagement strategy | Three matching preliminary themes / The step renamed with the earlier cases is valid also for this case |
| The partner was contacted but no agreement was made | Approach the organizations and build commitment | – |
| A roadmap was made for the development of the service to support all needs of different actors | Develop a roadmap *(Not a preliminary theme)* | Suggested new step |

The findings also suggest that the implementation phase could have a new step. The suggested step is “develop a roadmap”, because it is mentioned in the description of the third case and it does not fit with the existing steps. However, developing a roadmap is rather related to general service development, not business network re-design. Thus, this step is not added to the framework unless it is pointed out in other empirical cases.

### 5.2.4 Preliminary Findings

The first three cases have a lot of similarities with each other, and managers within one sub business unit of a large IT company conducted them. The managers were not following any schoolbooks nor theories – they rather applied a group of methods they felt useful.

The cases have similarities at least with value network analysis and designing ecosystems literature. The business network analysis was following the mapping of actors, transactions and deliverables like in value network analysis – even though the practitioners did know about value network analysis and its notation. To some extent, the managers also validated the value network for completeness and analyzed value creation and value exchanges in the business network like it is advised in value network analysis (Allee & Schwabe, 2015).

The cases had also similarities with phases and steps in designing ecosystems like defining the initial value proposition, identifying stakeholders and their interests, analyzing the characteristics of different actors, and defining the new business network (Den Ouden, 2012). The cases had also some similarities with the implementation phase of designing ecosystems approach.

However, none of the three cases followed any of the approaches presented in the relevant literature as such. Still, many pieces of the known approaches were applied in a new context.

*Summary of the tentative framework based on the first group of cases*

The tentative business network re-design framework based on the first group of cases (cases with large IT company) is shown in figure 14. The framework has four phases and twenty steps. Some of the themes found in the cases are merged to one if the themes were always carried out closely with each other. Get insight and problem framing are brought together. Also communicate about the change and balance value for all parties are joined.

The three cases did not have any major contradictory findings, which was expected because they were carried out by managers of the same SBU within the large IT company having a common background. Furthermore, they all regarded development of SaaS services for the new SaaS offering of the SBU. There were some steps that were not actively present in all of the cases either because the issue was mentioned just briefly in the other cases or the other cases did not involve all steps of some of the phases. For example, the usage of partners in the network was limited in the implementation phase of the first case.

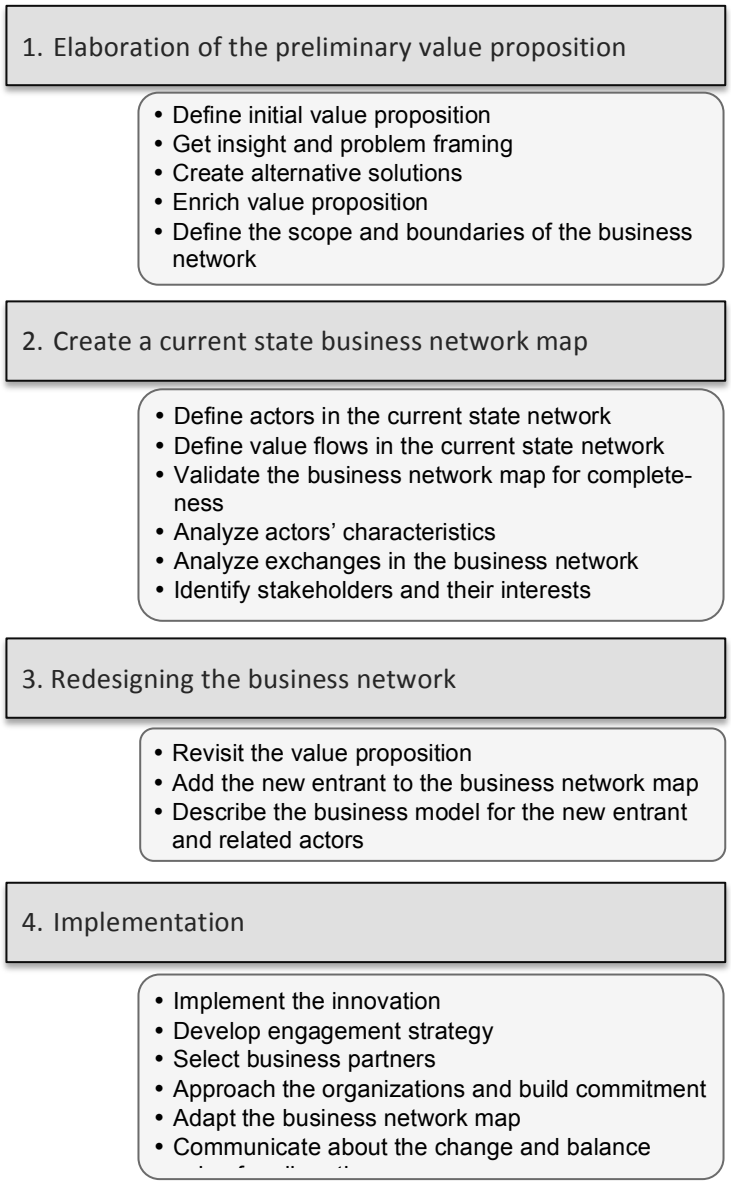



**Figure 14.** Tentative business network re-design based on the first group of cases

The main ideas of value network analysis do not have any major differences. Allee & Schwabe (2015) advice to have main phases of create current state map, analyze current state map and optimize the network – all this is aligned with the tentative framework.

Designing ecosystems has also a lot of similarities with the tentative framework. However, there is one major phase, which exists in designing ecosystems but is not present in the tentative framework. Designing ecosystems approach suggests that the firm having the innovation should select other parties for co-ideation early in the process.

In the empirical cases, the firm having the innovation contacts other parties in the last phase only, and it makes the network re-design without any other parties. However, the firm is prepared to adjust the planned network and value proposition according to the negotiations with other key actors. It is possible

that this difference in contacting other parties could be related to this IT company only. However, the managers explained that they had to understand the market they were not familiar with and make their plans before contacting any other party. Because the firm is a newcomer in the market, and the others are already strong players in the existing market, the entrant has to prepare carefully for its first move. If the firm having the innovation would contact the other players early without any proper preparations, the other parties would not see a need to change their business. Instead, they could try to adopt the innovation themselves using their existing business networks.

Business reengineering suggests that the chosen process should be rather reinvented than improved. Business network re-design looks more like adjusting than reinventing. However, it is a matter of different level of analysis. In business reengineering, reinventing concerns processes – that is, how the operation is split into tasks and how it is conducted as a workflow. In business network re-design, we are considering strategic and tactic level issues: how we design our business model and how value is created and shared in the network. Moreover, creating a new adjusted business network is inventing a new process. The process is defined after the network strategy is established.

## 5.3 Cases with Small Firms

The next three cases concerned three different firms. One of the firms was a start-up, another was about two years old, and the third was an established small firm that wanted to move from traditional design project business to consulting business. All the three cases were consulting cases where a consultant was asked to help the firm to commercialize the innovations the firms had. The consultant was responsible to make the design and business plan in all cases, but he attended to the implementation of the plan just in one of the cases (the architecture agency).

### 5.3.1 Start-up with New Payment Management Idea

*Case background*

This case concerned a couple of businessmen who had a patent and were about to start up a new venture[6]. The patent was about payment management system with benefit handling: when a user pays some service so that the employer for example supports a part of the payment or a discount is based on the agreement between the card issuer and the service provider. Even though the patent and the business regarding it were promising, the businessmen did not get investors or first customers involved. The businessmen asked a consultant to analyze the situation and commercialize the innovation to enable the new business.

[6] The case is under non-disclosure agreement and the business owners have not granted to publish any details about the patent or their business.

*Key business network analysis and re-design issues*

The original business idea regarded payment management system. The businessmen had concentrated more on technical issues and considered the value proposition more as new functionality compared to existing systems. The consultants started the analysis by describing the value proposition in business terms and finding alternative usages for the innovation. Next, the consultants and the businessmen got a general view of the alternatives and an overview of corresponding business networks. Three most promising business domains were selected where the innovation could be applied, and business network analysis was made for all of them.

The business network analysis started with familiarizing with the business context and challenges of each selected business domain. A current state value network map was made by defining actors, value flows, and deliverables between different actors. The consultants avoided using just general roles as actors. Instead, they insisted to have real life examples, real names of companies, organizations or persons occupying a role to analyze the characteristics of different actors and understanding the current value exchanges. The idea was to concretize the situation where the innovation was used. However, the selection of the named actors was made so that the scenario was still considered as a representative sample to avoid bias due to too special cases. The work continued with analyzing the interests and attitudes of different actors and stakeholders. The analysis included much iteration. As some facts were added or changed with some actors, the business network was analyzed to ensure coherence.

The value proposition was adjusted to match the interests of different actors in the network. The actor with new innovation was added to the business network map, corresponding value flows were drawn and target state network maps were designed.

*Results of business development*

Based on the target state maps, action points were defined: what parties should be contacted, and how to approach and negotiate with them. The idea was to find a proper balance of business models during the negotiations and adjust the network diagram and value proposition if needed. The consultant made a plan to establish the new business, and the customer was to launch the business without the consultant. However, the three businessmen did not agree how to start the new venture[7], and the plan was not implemented as such.

*Business Network Re-design Issues*

The first case in the second group considered a startup having a patent and a preliminary business idea regarding payment management. The progress of

[7] The disagreements did not consider the issues of the analysis or network design.

business network re-design excluding the references to the specific case is analyzed in figure 15.

Here, the business network re-design is proposed to have six phases. Phase 1 includes defining initial value proposition, creating alternative solutions, and identifying business networks regarding the alternatives. The purpose is to get the overview of the potential business of the innovation including the potential business domains or business networks where the value proposition can be applied.

The second phase contains steps selecting most promising business networks, and understanding the context of the business network(s). The purpose is to select best candidates and to get more familiar with the selected business domain to be able to start business network analysis in phase 3.

The third phase involves describing the current state business network. It involves steps for defining the actors in the business network, defining the value flows and validating the business network map for completeness. The third phase has only the definition of the current state value network – the further analysis of the value network takes place in the fourth phase "analyze the network relationships". The fourth phase includes steps for analyzing the characteristics of the actors and the exchanges in the business network, analyzing the actors' and stakeholders' interests.

The fifth phase concerns checking the value proposition and redesigning the business network to achieve the target state business network. According to the matching theme, the first step is "analyze the compatibility of the value proposition with the interests of stakeholders". However, the value position was rather adjusted to meet the interests of the stakeholders than just analyzed. Thus, it is suggested to rename the step as "adjusting the value proposition to match the interests of the actors". The next step matches with theme "analyze and improve the value flow model". To be more specific, it is called "add the new actor to the value network and the corresponding value flows".

The last phase, implementation, starts with developing engagement strategy and selecting first pick of parties for implementation. Actually, there is no first pick of parties like in designing ecosystems approach, because there was no co-ideation of the re-designed business network. So, the step is called as select potential partners. The next step is "approach the organizations and build commitment". The last steps are "adapt the new business network" and "balance value for all parties".

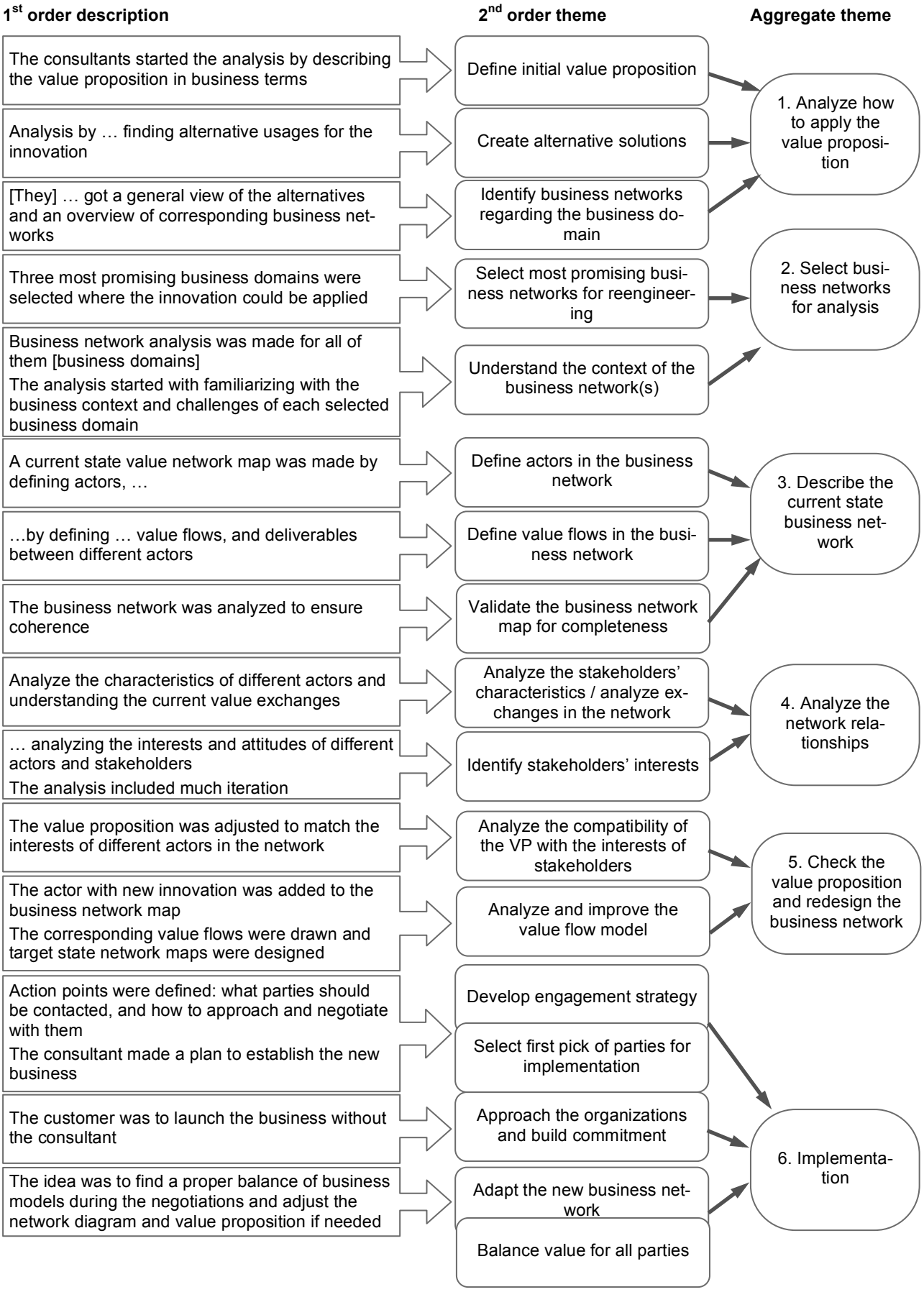



**Figure 15.** Analysis of the start-up with payment management idea.

### 5.3.2 Real Estate Management Consulting

*Case background*

A small architecture agency wanted to offer new kinds of consulting services to real estate owners. They had an innovation regarding real estate usage, sizing and maintenance concept. The architecture agency attended to Tila programme funded by Tekes (the Finnish Funding Agency for Innovation). The Tila programme was aimed to develop promising new concepts for real estate sector. The innovation of the architecture agency was very promising, but it was not easy to sell the service to the customers. Tekes also insisted that there has to be an external consultant helping with business model development. This case was carried out parallel to the previous case (see chapter 5.3.1), and similar methods were used.

*Key business network analysis and re-design issues*

A vision of the new business and a preliminary value proposition was defined. The case continued with understanding what is the business scope of the real estate management services. The consultants and the managers of the architecture agency defined a couple of alternative scenarios, where the original business idea could be applied. The scenarios included defining the value proposition, customers and a general view of the associated business network.

The consultants and the managers selected two scenarios to be analyzed more in detail. They defined the scope and boundaries of the business domains and identified actors and stakeholders. A current state business network was analyzed for both of them including actors, transactions between the actors and deliverables in the transactions. Furthermore, interests and needs of different actors and stakeholders were analyzed. The analysis included also relevant stakeholders inside the boundaries of actors. For example in municipalities different branches of business had quite different interests regarding real estates. The analysis iterative in its nature: the business network was revisited and checked for completeness until saturation was found – that is, new iterations brought up minimal changes.

The value proposition was revisited to match with the needs and interests of different actors and stakeholders. To define the target state business network, the new actor with the innovation (the architect agency) was added to the business network. Business model was defined for the architect agency, and the business network was validated for the compatibility with the interests of different actors.

*Results of business development*

The business development continued after the business network re-design. The offering portfolio of the real estate management services was developed based on the new business network, and the sales modules and corresponding implementation “packages” of the services were defined. Three different consulting services were launched. A strategy was defined how to influence differ-

ent stakeholders. The real estate management services got several customers within two years after the commercialization. Later, the architecture agency launched also a SaaS service that supported the consulting services, and a potential partner was approached for a common business case.

The business network re-design was used to find to whom and with what partners the service should be provided. Furthermore, the analysis revealed the key benefits what the service could offer to each actor – what the key arguments are. The analysis showed that there are different stakeholders with a bit different interests within a typical customer organization. The managing director noticed:

> Previously, it was hard to contact the customers with our business idea. After the commercialization with network analysis, I knew exactly who should be contacted with what message, and the customers were really keen on the issue. We were also able to see some other organizations as partners even though we were considering them as pure competitors originally.

*Business Network Re-design Issues*

The first order descriptions of the next case (real estate management consulting) are shown in table 14. The table shows also what are the corresponding 2nd order theme and a suggestion for changes in the 2nd order themes if any. The case has been carried out parallel to the previous case (startup with payment management idea); most of the second order themes found in the previous case are applicable to this case. The aggregate themes remained the same.

There are three new steps proposed in the analysis of the case with the startup. “Define the scope and boundaries of the selected business networks” is suggested to be the last step in phase 2 “Select business networks for analysis”. Phase 5 (check the value proposition and redesign the business network) is proposed to include themes “define business models at actor level”, and “analyze the compatibility of the value proposition with the interests of stakeholders” as steps. However, the latter step regards checking if the interests in the business network are still valid compared to the new business network structure. Thus, the step is named as “Check the compatibility of interests in the business network”. The proposed additions have similarities in relevant literature: the first one can be found in value network analysis, and the others in designing ecosystems approach.

**Table 14.** Analysis of real estate management case vs. the tentative framework.

| 1st order description | 2nd order theme | Comment |
|---|---|---|
| A vision … and a preliminary value proposition was defined | Define initial value proposition | – |
| Understanding what is the business scope of the real estate management services | Get insight | New step suggested |
| [They] defined a couple of alternative scenarios, where the original business idea could be applied | Create alternative solutions | – |
| The scenarios included defining the value proposition, customers and a general view of the associated business network | Identify business networks regarding the business domain | – |
| [They] selected two scenarios to be analyzed more in detail | Understand the context / Select most promising business networks | Two matching themes |
| They defined the scope and boundaries of the business domains | Define the scope and boundaries of the business network | New step suggested |
| … business network was analyzed for both of them including actors, transactions between the actors and … | Define actors in the business network / define value flows in the network | – |
| [They] identified actors and stakeholders | Define actors in the business network / Identify stakeholders of the VP | – |
| A current state business network was analyzed for both of them [scenarios] including actors | Define actors in the business network / Define value flows in the network | – |
| The business network was revisited and checked for completeness until saturation was found | Validate the business network map for completeness | – |
| … analyzed including … transactions between the actors and deliverables in the transactions | Analyze exchanges in the business network / analyze stakeholders' characteristics | – |
| Interests and needs of different actors and stakeholders were analyzed | Identify stakeholders' interests | – |
| The analysis included also relevant stakeholders inside the boundaries of actors | Identify stakeholders' interests | Note: internal stakeholders were also analyzed |
| The analysis iterative in its nature | Identify stakeholders' interests | A recurring issue, but not a step itself |
| The value proposition was revisited to match with the needs and interests of different actors and stakeholders | Adjust the value proposition to match the interests of the actors | – |
| The new actor with the innovation (the architect agency) was added to the business network | Add the new actor to the value network and the corresponding value flows | – |
| Business model was defined for the architect agency | Define business models at actor level | Suggested new step |
| The business network was validated for the compatibility with the interests of different actors | Analyze the compatibility of the VP with the interests of stakeholders | Suggested new step (same theme as above, but used for different purpose) |
| A strategy was defined how to influence different stakeholders | Develop engagement strategy | – |
| A potential partner was approached for a common business case | Select potential partners / Approach the organizations and build commitment | – |

### 5.3.3 Small IT Consulting Company

*Case background*

This young, small IT consulting company was based on the core competences of the key persons, and they were having hourly based project work for a couple of customers. The objective was to define key offering and develop service "modules" to improve the company image and make it easier to sell services to new customers (and get new sales cases within the existing customers).

*Key business network analysis and re-design issues*

The starting points of this case were the core competences of the key persons and the consulting cases they had with their key customers. The vision for new business and a preliminary value proposition was defined. Furthermore, the consultants and the key persons sketched alternative new consulting services. Two totally different scenarios were found: an evolutionary and revolutionary approach. The evolutionary approach concerned developing the new consulting services based on existing services, and the revolutionary approach regarded IT services that were totally different from existing customer cases. Because the company was small, the managers of the company selected the evolutionary approach to ensure continuous income and lower risk for the company.

The analysis continued with elaborating the customer situations regarding the selected customer cases. Three sample customer situations were analyzed as business network maps. There was a deeper look at the customers – sub-organizations and key persons (stakeholders) were analyzed as actors. The other actors like service providers and vendors were mapped as organizations only. Transactions between different actors were drawn, and the business network map was checked to be complete. The characteristics of actors were described, and the exchanges between the actors were studied. The objectives, interests and motivations of different actors and stakeholders were also described. The internal actors within the customer were analyzed also by their power to influence in decision-making.

Based on the current state business network, the value proposition of the new consulting services was checked to be compatible with the interests of the customer side actors. The value proposition was formulated to match different the actors' situations. Adding the small IT company to the map and the corresponding new transactions made a new business network map. The business model was defined for the small IT company, and it was checked to fit with the interests of the related actors.

*Results of business development*

The offering and service modules of the IT company were developed according to the network analysis, and the value proposition was formulated for argumentation to different customers' internal actors. Next, a plan was made how to contact different customers. The first feedback was that it was easier to sell more consulting services to the existing customers.

**Table 15.** Analysis of case small IT company compared to the tentative framework.

| 1st order description | 2nd order theme | Comment |
|---|---|---|
| The vision for new business and a preliminary value proposition was defined | Define initial value proposition | – |
| … sketched alternative new consulting services | Create alternative solutions | – |
| Two totally different scenarios were found | Identify business networks regarding the business domain | The scenarios involved their own business networks |
| The managers of the company selected the evolutionary approach | Select most promising business networks for reengineering | – |
| … elaborating the customer situations regarding the selected customer cases | Understand the context of the business network(s) | – |
| Three sample customer situations were analyzed as business network maps | Define actors in the business network | – |
| Sub-organizations and key persons (stakeholders) were analyzed as actors | Define actors in the business network | Internal actors within an organization |
| The other actors were mapped as organizations only | Define actors in the business network | – |
| Transactions between different actors were drawn | Define value flows in the business network | – |
| The business network map was checked to be complete | Validate the business network for completeness | – |
| The characteristics of actors were described | Analyze stakeholders' characteristics | The analysis considered rather actors than stakeholders |
| The exchanges between the actors were studied | Analyze exchanges in the business network | Suggested new step |
| The objectives, interests and motivations of different actors and stakeholders were also described | Identify stakeholders' interests | – |
| The internal actors within the customer were analyzed also by their power to influence in decision-making | Identify stakeholders' interests | Internal stakeholders notified again |
| The value proposition of the new consulting services was checked to be compatible with the interests of the customer side actors | Adjust the value proposition to match the interests of the actors | – |
| The value proposition was formulated to match different the actors' situations | Adjust the value proposition to match the interests of the actors | Could be renamed as "Adjust the value proposition to match the interests of the actors" |
| Adding the small IT company to the map and the corresponding new transactions made a new business network map | Add the new actor to the value network and the corresponding value flows | – |
| The business model was defined for the small IT company | Define business models at actor level | – |
| It was checked to fit with the interests of the related actors | Check the compatibility of the VP with the interests in the business network | – |
| A plan was made how to contact different customers | Develop engagement strategy | – |

Using business network re-design, it was possible to find the key actors and their interests and obstacles for making more business. It was possible to design some entry consulting services so that they solve the obstacles the customers have, and then there are other consulting services that can be sold after the obstacle has been removed.

*Business Network Re-design Issues*

The first order descriptions of the sixth case are shown in table 15. The table shows also the corresponding themes and suggested changes.

Step "analyze stakeholders' characteristics" is renamed to "analyze actors' characteristics" because the analysis in the case (as well as in the first case) regarded actors, not stakeholders[8].

Step "Adjust the value proposition to match the interests of the actors" in phase "Check the value proposition and redesign the business network" is proposed to be split into two. The new steps are "Analyze the compatibility of the value proposition with the interests of stakeholders", and "Redefine the value proposition if needed".

The designing ecosystems literature has also similar approach than how the former change is made (two separate steps).

### 5.3.4 Preliminary Findings

The three cases here have similarities with the first three cases even though the companies in the cases are quite different. Also these three cases commonalities with value network analysis and designing ecosystems approach. The analysis similar to value network analysis in the mapping of actors, transactions and deliverables. Moreover, there were similarities with designing ecosystems in the same way as with the first three cases.

*Summary of the tentative framework based on the second group of cases*

The tentative business network re-design framework based on the second group of cases (cases with small companies) is shown in figure 16. The framework has six phases and 22 steps.

The cases in the second group did not have any contradictory findings. This was expected for the two first cases, because the same consultants carried them out at the same time. There were steps that were not present in all of the cases, which is probably due to normal variation in consulting cases.

There is one contradiction with relevant literature, and it is the same as with the first group of cases: designing ecosystems approach suggests that the firm having the innovation should select other parties for co-ideation early in the process, but the empirical cases do not have evidence of such.

[8] The analysis considered two levels in the case: actors and stakeholders also within actors' boundaries. In designing ecosystems approach, the stakeholders within actor's boundaries were not considered (stakeholder is the same as actor, in practice).

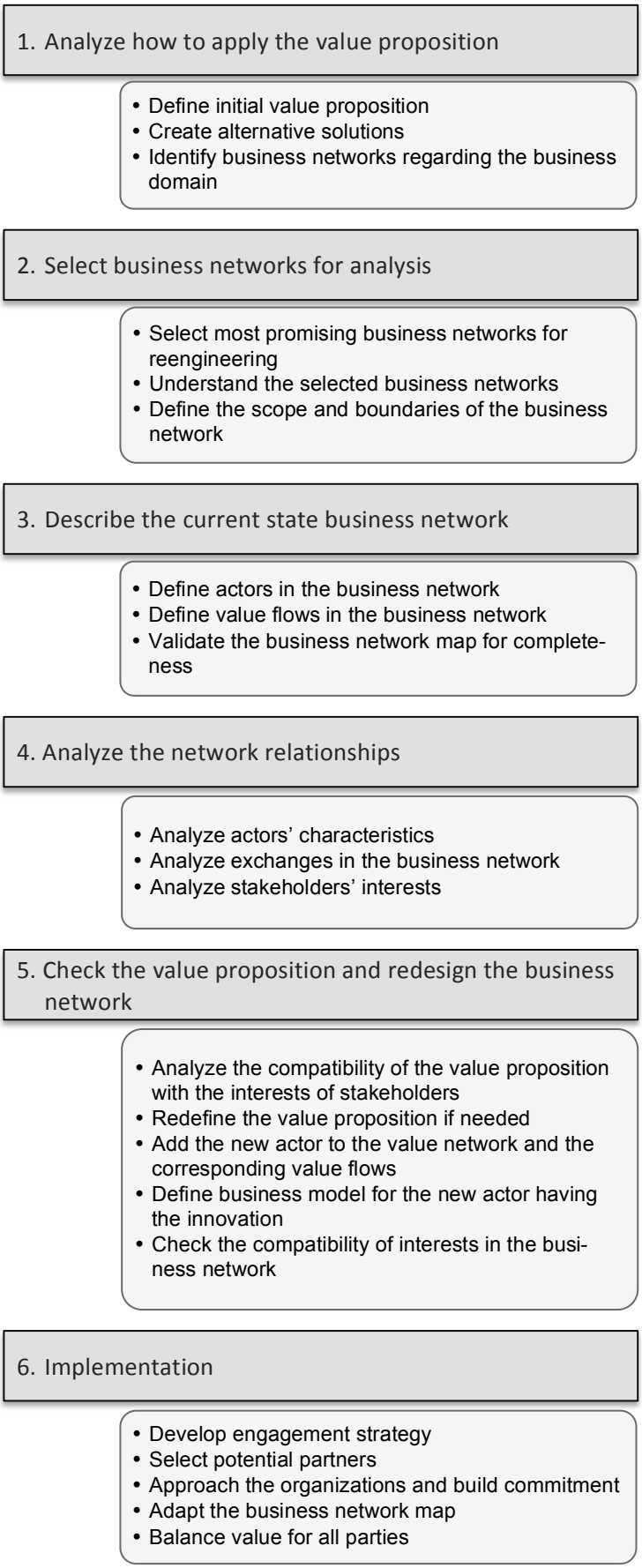



**Figure 16.** Tentative business network re-design based on the 2nd group of cases

### 5.3.5 Comparison and Synthesis of the Tentative Frameworks

In chapters 5.2.4 and 5.3.4 two separate frameworks were built for business network re-design. The first one is based on cases with a large IT company and the other is based on cases with small companies. The two tentative frameworks have a lot of similarities. The consultants in the latter group of cases knew about the cases in the first group. However, the business scope was different: the cases with the large IT company were analyses for creating SaaS services for the company itself. The other cases were consulting cases for other companies who were having totally different kind of business. The latter cases were also carried out a couple of years later than the former cases.

The main phases of the two tentative frameworks are not identical, but they can be linked one to another. The second tentative framework has two phases more than the first one (refer to table 16). The first phase of the framework based on the first group "Elaboration of the preliminary value proposition" has two corresponding phases in the framework based on the second group: "Analyze how to apply the value proposition" and "Select business networks for analysis". There were cases in the second group where the consultants identified different potential business domains or business networks in the beginning. Later, some of these business networks were selected for further analysis. The cases in the first group did not have this kind of an approach. However, the main phases of the second tentative framework is applicable to the cases in the first group: in those cases, there is just one business network and the selection of business networks is just self-evident.

The second phase in the framework based on the first group has also two corresponding phases in the framework based on the second group. In the second group the analysis of the current state business network had more emphasis and was considered as a separate phase. Again, the main phases of the framework based on the second case are also applicable to the cases in the first group.

The third and the fourth phase in the framework based on the first group have actually corresponding phases in the framework based on the second group of cases. Thus, we can take the phases in the framework based on the second group as the basis for the synthesis of the two frameworks. The steps of the two tentative frameworks are shown in table 17.

**Table 16.** Comparison of the phases of the two tentative frameworks.

| Framework based on the1st group | Framework based on the 2nd group |
|---|---|
| 1. Elaboration of the preliminary value proposition | 1. Analyze how to apply the value proposition |
| | 2. Select business networks for analysis |
| 2. Create a current state business network map | 3. Describe the current state business network |
| | 4. Analyze the network relationships |
| 3. Redesigning the business network | 5. Check the value proposition and redesign the business network |
| 4. Implementation | 6. Implementation |

**Table 17.** Comparison of the steps of the two tentative frameworks.

| Phase | Framework based on the1st group | Framework based on the 2nd group | Comparison |
|---|---|---|---|
| 1 | Define initial value proposition | Define initial value proposition | Basically the same |
| 1 | Get insight and problem framing | – | Can be seen as part of the previous and also managed in the 2nd phase |
| 1 | Create alternative solutions | Create alternative solutions | Basically the same |
| 1 | Enrich value proposition | – | Can be seen as part of the previous |
| 1 | – | Identify business networks regarding the business domain | Latent the first group |
| 2 | – | Select most promising business networks for reengineering | Latent in the first group |
| 2 | (Get insight and problem framing) | Understand the selected business network(s) | Similar |
| 2 | Define the scope and boundaries of the business network | Define the scope and boundaries of the business network | Basically the same |
| 3 | Define actors in the current state network | Define actors in the business network | Implicitly included in the previous step in framework 1 |
| 3 | Define value flows in the current state network | Define value flows in the business network | Implicitly included in the previous step in framework 1 |
| 3 | Validate the business network map for completeness | Validate the business network map for completeness | Basically the same |
| 4 | Analyze actors' characteristics | Analyze actors' characteristics | Basically the same |
| 4 | Analyze exchanges in the business network | Analyze exchanges in the business network | Basically the same |
| 4 | Analyze stakeholders' interests | Analyze stakeholders' interests | Basically the same |
| 5 | Revisit the value proposition | Analyze the compatibility of the value proposition with the interests of stakeholders | The step in framework 1 has two related steps in framework 2 |
| 5 | – | Redefine the value proposition if needed | The step in framework 1 has two related steps in framework 2 |
| 5 | Add the new entrant to the business network map | Add the new actor to the value network and the corresponding value flows | Basically the same |
| 5 | Describe the business model for the new entrant and related actors | Define business model for the new actor having the innovation | Basically the same |
| 5 | – | Check the compatibility of interests in the business network | Not explicitly present in framework 1, but applicable |
| 6 | – | Develop engagement strategy | Not explicitly present in framework 1, but applicable |
| 6 | Implement the innovation | – | Not actually a business network re-design action |
| 6 | Select business partners | Select potential partners | Basically the same |
| | – | Approach the organizations and build commitment | Not explicitly present in framework 1, but applicable |
| 6 | Adapt the business network map | Adapt the business network map | Basically the same |
| 6 | Communicate about the change and balance value for all parties | Balance value for all parties | Balancing value is the same in the two tentative frameworks |

The analysis in table 17 shows that it is possible to make a synthesis of the two tentative frameworks (comparison is shown in the fourth column). The two tentative frameworks are not equal, but most of the steps can be linked from the other framework to another. Some of the steps exist only in the other framework. In those cases, it is typical that the other framework is just more

accurate and the step is also applicable for the cases in the other group. There were also a couple of steps that were considered that they are not issues of business network re-design actually. They are proposed to be removed from the synthesis framework.

As a result of the synthesis, the joint framework is found in table 18. Phase "Check the value proposition and redesign the business network" was split into two when the joint framework was defined, because the phase actually consisted of two different issues. The steps in the joint framework were adjusted to get a fluent process and the naming was set to match the two source frameworks and the relevant literature.

**Table 18.** The joint business network re-design framework based on two groups

| Phases and steps |
|---|
| Analyze the applicability of the initial value proposition<br>• Define initial value proposition<br>• Create alternative solutions and enrich the value proposition<br>• Identify business networks regarding the business domain |
| Select target business network(s)<br>• Select the most potential business network(s)<br>• Understand the context of the business network(s)<br>• Define scope and boundaries of the business network(s) |
| Create a map of current state network<br>• Define actors in the business network<br>• Define value flows in the business network<br>• Validate the business network map for completeness |
| Analyze network relationships<br>• Analyze actors' characteristics<br>• Understand exchanges in the business network<br>• Analyze stakeholders' interests |
| Revisit the value proposition<br>• Analyze the compatibility of the value proposition with the business & interests of the network<br>• Refine the value proposition if needed |
| Redesign the business network<br>• Add the actor with the new value proposition in the network<br>• Define new value flows<br>• Describe business model for related actors and the actor with the new value proposition<br>• Check the compatibility of motivations and interests |
| Implementation<br>• Develop engagement strategy<br>• Select parties for negotiations<br>• Approach the organizations and build commitment<br>• Adapt value flow and balance value sharing in the network |

## 5.4 Cases with Public Sector

There are two public sector cases. In both cases, public sector organizes a service where private firms produce some parts of the full service. Therefore, the planning effort is about establishing a public–private partnership model by using business network re-design approach. Both cases were consulting cases where a consultant was asked to help the public organization to design the partnership model. The consultant was responsible to make the design and business plan in both cases, but not to participate in the implementation of the plan.

### 5.4.1 E-business Framework

*Case background*

The customer for this case was the state IT service center of Finland. State government had had a lot of different e-business systems, and the levels of usability, security and interoperability of different systems were not always satisfactory. Every state organization had to solve the same e-business system issues one after another. The idea was to provide a common e-business framework for all public organizations, and that would speed up making new e-business solutions that would be on high level of quality and security at the same time.

*Key business network analysis and re-design issues*

The state IT service center wanted to provide the e-business framework. However, the managers at the state IT center realized quite early that an ecosystem around the e-business framework is needed. To ensure wide use of the framework, there should be a number of private IT companies that could provide their own services and implement solutions for public sector customers.

The case started with the definition of the initial idea of e-business framework. Prior experiences of e-business systems and frameworks were compared to get the first understanding of the needs and challenges. To find alternatives and more ideas, the e-business framework were co-designed with potential customers and IT providers: what is the core value proposition, what functionality there should be in the e-business framework, and what supplementary offering is provided by private IT companies.

Another track was the design of the new business network (ecosystem), which was made in parallel with the co-design workshops. The ecosystem analysis was made by the consultants and the managers of the state IT service center. The business network was first compounded of known actors like existing services and service providers in the state IT architecture. Potential new actors were denoted as roles. The responsibility of each actor was described and its relationships with the others. The relationships were described as what services and value an actor provides to another and what value it gets in return. The business network was validated to be coherent and complete by the

simulation of some examples. The characteristics and interests of the actors were described. A couple of different scenarios of value exchange between different actors were made. This included the description of the corresponding business models of the actors. Finally, the most balanced network scenario with best fit with the interests of the actors was selected. The design the new business network included much iteration where the core value proposition of the e-business framework was refined during the iterations.

*Results of business development*

As a result, a plan of the e-business framework, implementation strategy for the ecosystem and an investment plan were made, and the personnel of state IT service center were satisfied with it. The ecosystem consisted of about a dozen different actors defined as roles. The model included how different actors generated value and how revenue flows would be managed.

However, the head of public sector IT function of the Ministry of Finance decided to stop the further planning and preparation of the e-business network. The justification was that the e-business framework would disturb Finnish IT market. A couple of years later, the IT function of Ministry of Finance launched programme called National Service Architecture that was based on a service bus integrating different e-services. The ecosystem plan of the e-business framework was reused there, because the National Service Architecture handles almost the same issue as the e-business framework, actually.

*Business Network Re-design Issues*

The case is compared with the framework (defined in chapter 5.5.3) in table 19. The case is perhaps a mixture of redesigning a business network and designing a new ecosystem. However, it fits well with the framework as we can see in the table. The case does not propose any changes to the framework. There are some steps that were not executed in the case (like “Identify potential business networks”, “Select the most potential business network(s)”, and the steps in the implementation phase). One issue was described very briefly in the case, and it actually links to many steps in the current business network analysis phase and revisit the value proposition phase.

### 5.4.2 Information Services Partnership Model

*Case background*

Here, the customer was Finnish population register centre that is responsible of keeping a centralized register of all permanent residents in Finland and their home addresses. The information service of the register was divided into two sections: giving information to public sector and private sector. The population register managed the information service for public sector itself, but a couple selected partners managed the information service for private sector.

**Table 19.** Analysis of case e-business framework compared to the framework.

| 1st order description | 2nd order theme | Comments |
|---|---|---|
| The case started with the definition of the initial idea of e-business framework. | Define initial value proposition | – |
| To find alternatives and more ideas … | Create alternative solutions and enrich the value proposition | – |
| Prior experiences ... were compared to get the first understanding of the needs and challenges. | Understand the context of the business network(s) | – |
| The ecosystem analysis was made … | Define scope and boundaries of the business networks | The analysis included defining what is included and excluded implicitly |
| The business network was first compounded of known actors like existing services and service providers in the state IT architecture. | Define actors in the business network | The existing actors |
| Potential new actors were denoted as roles. | Define actors in the business network | Supplementing new actors |
| The responsibility of each actor was described and its relationships with the others. | Define value flows in the business network | – |
| The relationships were described as what services and value an actor provides to another and what value it gets in return. | Define value flows in the business network | – |
| The business network was validated to be coherent and complete by the simulation of some examples. | Validate the business network map for completeness | – |
| The characteristics and interests of the actors were described. | Analyze actors' characteristics | – |
| A couple of different scenarios of value exchange between different actors were made. | Understand exchanges in the business network | This actually is linked to many different steps in the framework |
| This included the description of the corresponding business models of the actors. | Describe business model for related actors and the actor with the new value proposition | – |
| Finally, the most balanced network scenario with best fit with the interests of the actors was selected. | Check the compatibility of motivations and interests | – |
| The design ... included much iteration ... | (general) | – |
| Implementation strategy for the ecosystem and an investment plan were made | Develop engagement strategy | – |

The original partnership model for the private sector information service had three partners who were selected using a procedure that is similar to competitive bidding. The issue here was to decide which kind of a partnership model should be used in the future: whether to continue using the existing partnership model or to have some other model.

*Key business network analysis and re-design issues*

The business to be analyzed and developed was defined as the information service for private sector. The analysis started with setting a vision for the fu-

ture information service and getting insight of the information service domain. In addition to the population register centre's own information service, the consultants analyzed three other public sector organizations that had similar information services to get better understanding of potential actors, possibilities and challenges in the information service business.

A network analysis was made of known actors in this domain. This included the analysis of the role, characteristics and business interests of different actors. Value exchanges between different actors were defined to create the current state business network map. The network approach revealed that there are a number of actors in the information service sector, and there appeared to be extra value networks organized around the three existing partners of the information service of the population register centre.

Based on the current state map, it was possible to see what kind of information service customer needs and potential new partners there are – what consequences there are if a new kind of a partnership model is applied. Four different scenarios were designed. Each scenario was analyzed how it affects to the business network, the potential partners' business and the amount of potential partners. The most appropriate scenario was selected.

*Results of business development*

As a result, new partnership strategy was defined and a road map was set how to move to the new partnership model step by step in the following years. The partnership strategy was based on an open public-private partnership model where new private actors may enter to the ecosystem more freely – not limited to the closed market of three companies for four-year periods as before. The plan included action points for developing the support services for the information service, and negotiations with best partner candidates.

*Business Network Re-design Issues*

The case is compared with the framework in table 20. The framework suits also to this case. The case does not propose any changes to the framework. There are some steps that were not executed in the case. Two issues were described quite briefly in the case, and they link to many steps in the framework.

**Table 20.** Analysis of case e-business framework compared to the framework.

| 1st order description | 2nd order theme | Comments |
|---|---|---|
| The business ... was defined as the information service for private sector. | Define initial value proposition | – |
| ... setting a vision for the future information service and getting insight of the information service domain. | Identify potential business networks | Analysis of other information services was made to see what kinds of networks they have |
| ... get better understanding of … the business. | Understand the context of the business network(s) / define scope and boundaries of the business network | – |
| A network analysis was made of known actors in this domain. | Define actors in the business network | – |
| Value exchanges between different actors were defined | Define value flows in the business network | – |
| This included the analysis of the role, characteristics and business interests of different actors. | Analyze actors' characteristics / Analyze stakeholders' interests | Links to many steps in the framework, actually |
| Four different scenarios were designed. Each scenario was analyzed how it affects to the business network | Redesign the business network (in general) | Links to many steps in the framework, actually |
| The most appropriate scenario was selected | Analyze the compatibility of the value proposition with the business & interests of the network | – |
| New partnership strategy was defined and a road map was set how to move to the new partnership model | Develop engagement strategy | – |

### 5.4.3 Preliminary findings

The cases with public sector are a bit different from the others, because the duties of public sector organizations are defined in the official function of the organization. Therefore, public organizations may have services that are explicitly defined and the managers do not have similar possibilities to refine the value proposition of the service. Also, they need not to concern so much about competition in the market.

The first case with public sector (e-business framework) can be seen also as a new ecosystem design effort. However, some pieces existing business relationships were used as the basis of the design. Still, the first impression is that also these two cases have similarities with value network analysis and designing ecosystems approach.

## 5.5 Business Network Re-design Framework

### 5.5.1 Framework Based on Case Studies

The business network re-design framework is based on empirical findings of eight cases that have been enfolded with relevant literature. The framework has seven phases, as seen in table 18 on page 70. Each phase has a couple of steps. Even though the phases and steps are shown here as sequential steps, actually they are applied in an overlapping and iterative manner.

Business network re-design starts with defining initial value proposition, and trying to find different solutions and enrich value proposition. It means that the value proposition is not yet fixed, but the key ideas are known. Based on the value proposition and alternatives found, some potential business situations and related business networks can be identified.

Next we choose one or more potential business networks to be elaborated more. Because every actor is connected to many different business networks, the size of the network increases rapidly if all business relationships are included. Therefore, it is needed to understand what is the essential context, and to define the scope and boundaries of the network to be analyzed.

The third phase is to create a value network map of the current state business network. The idea is to understand the current situation first before introducing the new entrant into the network. The analysis is based on value network analysis approach: describing actors, value flows and deliverables. The deliverables can be tangible or intangible. The value flows describe the exchange of values between different actors. In other words, the flows answer to the questions like “Why do the actors make business with each other?” and “What I get from you, and what I give back to you in turn?” After making the first draft of the value network, it should be validated: the network is checked from the viewpoint of each actor. There should be also reciprocity: everyone receives and provides value.

In the next phase, the characteristics, motivations and interests of the key actors are considered. It means answering to questions like “What is the actor aiming at?” and “What are they concentrating in?” and “What issues do the managers value in the organization?” This means also to understand the relationships between different actors. It is possible to revisit the value flows described in the earlier phase.

After analyzing relationships, it is possible to see how well the initial value proposition fits with the interests of the key actors. The key actors are keen on making business if the value proposition meets their objectives and interests. Sometimes there are different stakeholders within an organization, and the value proposition should be appealing to people with different interests. As a consequence, there might be a need to adjust the value proposition.

When the value proposition is aligned with the motivations and interests of the key actors, it is time to add the new entrant to the value network map. New value flows are drawn into the map so that the entrant is possible to do its

business and value is shared in the network. It means also that the business model of the entrant and the actors directly associated with it need to be considered. If the other actors feel they can make business, it is evident that the entrant will be accepted into the business network. After creating the new business network map, it is vital to check whether the value proposition and value network is compatible with the motivations and interests of the key actors. This may require iteration between revisiting value proposition phase and redesigning the business network phase.

Last, it is time to prepare for the implementation, and start negotiations with the other parties. This might involve revisiting the value proposition and business network design based on the feedback from the negotiations[9].

### 5.5.2 Comparing the Framework with Literature

Every step in the table 18 has been compared with the extant literature – value network analysis, designing ecosystems, and business reengineering (refer to table 21):

- Symbol A shows that the step described in the table is similar to the extant literature. For example, the very first step ”define initial value proposition” is actually the same as in designing ecosystems.
- Symbol B shows that the step is a variation of the literature – the same step is carried out in the literature with a bit different settings.

[9] It is also possible to think that the co-ideation starts here and the task is to refine the value proposition and network design in the same way as in designing ecosystems approach (den Ouden, 2012). However, the entrant has made its homework and is ready to influence the other parties.

**Table 21.** Business network re-design framework and comparison with literature
Symbols: A = Similar to the extant literature, B = Variation of the literature, C = Applied use in another context.

| Phases and steps | VNA | DE | BR |
|---|---|---|---|
| Analyse the applicability of the initial value proposition | | | |
| • Define initial value proposition | - | A | - |
| • Create alternative solutions and enrich the value proposition | - | A | - |
| • Identify potential business networks regarding the domain | C | C | B |
| Select target business network(s) | | | |
| • Select the most potential business network(s) | - | - | B |
| • Understand the context of the business network(s) | - | B | A |
| • Define scope and boundaries of the business network(s) | A | B | A |
| Create a map of current state network | | | |
| • Define actors in the business network | A | B | B |
| • Define value flows in the business network | A | B | B |
| • Validate the business network map for completeness | A | B | B |
| Analyze network relationships | | | |
| • Analyze actors' characteristics | A | B | C |
| • Understand exchanges in the business network | B | B | C |
| • Analyze stakeholders' interests | C | B | C |
| Revisit the value proposition | | | |
| • Analyze the compatibility of the value proposition with the business & interests of the network | - | B | C |
| • Refine the value proposition if needed | - | B | C |
| Redesign the business network | | | |
| • Add the actor with the new value proposition in the network | B | B | - |
| • Define new value flows | A | B | B |
| • Describe business model for related actors and the actor with the new value proposition | - | A | - |
| • Check the compatibility of motivations and interests | C | B | C |
| Implementation | | | |
| • Develop engagement strategy | - | A | A |
| • Select parties for negotiations and approach them | - | A | C |
| • Build commitment and adapt value flow | B | A | B |
| • Balance value sharing in the network | - | A | B |

For example, the second step of the second phase "understand the context of the business network" is basically the same as in designing ecosystems with the variation that

- In designing ecosystems, the step is to understand the context of the business domain without analyzing any existing business network

    - In business network re-design, the existing business network is the starting point and it is the representation of the business domain, here.
- Symbol C denotes that the step in the table has basically the same idea than in the literature, but it has been applied in another context. E.g. in the third step of the fourth phase in the table ”analyze interests and motivations of different stakeholders” is similar to business reengineering, but
    - In business reengineering, the step is to analyze the interests and motivations of the *customer* of the *specified process*
    - Meanwhile in business network re-design, the step is to analyze the interests and motivations of *many different stakeholders* found *in the network*.
- As we can see in the table, every phase has many A’s and B’s, and every step has at least one A, B or C. This means that the business network re-design framework has strong connections with the extant literature. However, there is no column full of A’s, which would mean that the framework would be just a replica of some approach in the literature.

*Comparing the Framework with Value Network Analysis*

Value network analysis (Allee & Schwabe, 2015) concentrates in analyzing business networks. Thus, it does not start with analyzing initial value proposition or creating alternative solutions in the first place. However, suggest that the starting point is to define the scope and boundaries for the network analysis, which implicitly requires identifying potential business networks regarding the problem domain. Therefore, value network analysis fits partially with the first two phases in business network re-design framework (refer to table 21).

The third phase in the business network re-design framework is actually quite identical to the value network analysis. A map for describing the value network is created: actors, value flows and deliverables. Value network analysis suggests also validating the value network map for completeness after the actors, value flows and deliverables have been drawn in the value network map.

When improving the business network, value network analysis suggests analyzing actors’ characteristics, analyzing exchanges (e.g. for reciprocity) and considering the viewpoint of each actor. However, it does not exactly state that the interests of actors should be considered. Value network analysis does not cover ways to revisit value proposition or define new business models, but it advises to make changes to the network and defining new value flows and checking the new network for completeness. Finally, value network analysis suggests implementing the new business by adapting the new value flow model.

To summarize, the business network re-design framework includes all major steps and follows the order of the steps of value network analysis very well.

Business network re-design has also some additional phases and steps compared to value network analysis because it concerns a larger scenario.

*Comparing the Framework with Designing Ecosystems*

The first phase in the business network re-design framework links well with designing ecosystems literature. Den Ouden (2012) defines the first thing to do is to define the initial value proposition, and next to create alternative solutions and enrich the value proposition. Designing ecosystems does not directly advice to identify potential business networks and selecting the most potential ones, but it suggests identifying potential players and their business for the new business network. Designing ecosystems also suggests defining the network to different areas (refer to figure 6 on page 17), which leads to defining the scope and boundaries of the business network.

Designing ecosystems describes how to create a map of the business network including defining actors (at role level), defining value flows and validating the map. However, it has no separate phase for defining the current state map, it rather starts with defining the new business network map for the innovation. Designing ecosystems advices to analyze actors' characteristics and interests of different stakeholders, and to evaluate the exchanges in the business network. Furthermore, designing ecosystems suggests analyzing the compatibility of the value proposition with the business and interests of the actors in the network. Again, all this regards the new business network, not the current state business network.

The sixth phase in the business network re-design framework has also similarities with designing ecosystems approach. Designing ecosystems includes also defining new actors concerning the new innovation and their value flows in the business network map. However, these actors are the starting point for defining the whole business network map. In contrast in the business network re-design framework, the existing business network map is defined first and the new actor is added later. Designing ecosystems approach also includes phases and steps like defining business models at actor level and checking the compatibility of motivations and interests of different actors in the map.

The steps in the implementation phase in business network re-design are aligned with designing ecosystems. It includes developing engagement strategy, selecting parties for implementation, approaching organizations, and adapting the value flow model and balancing value sharing in the network. All these steps can be found in designing ecosystems approach (Den Ouden, 2012).

Business network re-design fits well with designing ecosystems approach. Most phases, steps and issues covered by designing ecosystems are also present in business network re-design. The main deviation is that business network re-design starts with analyzing current state business network and continues with altering it, meanwhile designing ecosystems starts directly with the new business network. There are also some differences concerning the cooperation with other parties: business network re-design framework suggests

the firm with the innovation to make analyses and re-design planning first, meanwhile designing ecosystems starts with early co-operation as co-designing the new business network.

*Comparing the Framework with Business Reengineering*

The phases of the business network re-design framework can be compared with business reengineering (Hammer & Champy, 2001), although business reengineering considers business processes, not business networks. However, if we assume that the thinking could be expanded to business networks, we may find some similarities. Business reengineering has issues like having the firm level overall process map and selecting a process to be reengineered. These issues are similar to identifying potential business networks and selecting the most potential business network(s). In business reengineering, understanding the chosen process and customer needs are similar to understanding the context and defining the scope and boundaries of the business networks. Creating a current state value network map phase is similar to analyzing what the process does in business reengineering. Moreover, analyzing network relationships phase is similar to analyzing how well the process performs and understanding critical issues in business reengineering.

Reinventing the process in business reengineering is similar to redesigning the business network, and implementation of the process is similar to the last phase in business network re-design (preparing to implement the innovation and new business network). Business reengineering does not have a step like "add the new actor and the new value proposition" as such, but it includes defining the new process, which is similar to defining new value flows on network level. Business reengineering has also phases and steps like implementation, define change management strategy, deploy the new process (applied here: deploy the new network), and continuous communication.

In general, business network re-design framework has a lot of similarities with business reengineering, but it has to define the needed phases and steps on network level whereas business reengineering regards business process level.

### 5.5.3 Cross-Case Analysis of the Framework

There is also a comparison of the empirical cases with the business network re-design framework in table 22. Case number in the interview topic column refers to the corresponding chapter in the thesis.
The descriptions of the phases and steps are shortened, see table 21 on page 78 for full descriptions. The symbols are similar than in table 21:

- "A" denotes that the step was used in the case similar to the framework
- "B" denotes a variation or limited use in the case compared to the framework
- "C" stands for applied use of the step in another context in the case
- "–" means that the step was not applied in the case.

**Table 22.** Cross-case analysis of business network re-design framework
Symbols: A = used in the case similar to the framework, B = variation or limited use in the case, C = applied use in another context, – = not applied in the case

| Phases and steps | 5.2.1 | 5.2.2 | 5.2.3 | 5.3.1 | 5.3.2 | 5.3.3 | 5.4.1 | 5.4.2 |
|---|---|---|---|---|---|---|---|---|
| Analyze the applicability of the initial value prop. | | | | | | | | |
| • Define initial value proposition | A | A | A | A | A | B | A | B |
| • Create alternative solutions or usages of VP | A | A | B | A | A | B | A | C |
| • Identify potential business networks | B | A | B | A | A | B | B | B |
| Select target business network | | | | | | | | |
| • Select the most potential business network | B | A | B | A | A | B | B | B |
| • Understand the context of the network | A | A | A | A | A | A | A | A |
| • Define scope and boundaries | A | A | A | A | A | A | A | A |
| Create a map of current state network | | | | | | | | |
| • Define actors | A | A | A | A | A | A | C | A |
| • Define value flows | A | A | A | A | A | A | C | A |
| • Validate for completeness | B | A | B | A | A | A | C | B |
| Analyze network relationships | | | | | | | | |
| • Analyze actors' characteristics | A | A | A | A | A | A | B | A |
| • Understand exchanges in the network | A | A | B | A | A | A | B | A |
| • Analyze stakeholders' interests | A | A | B | A | A | A | B | A |
| Revisit the value proposition | | | | | | | | |
| • Analyze the compatibility of the VP | A | A | B | A | A | A | A | B |
| • Refine the value proposition if needed | C | A | C | A | A | A | A | C |
| Redesign the business network | | | | | | | | |
| • Add the actor with the new VP | A | B | B | A | A | A | A | B |
| • Define new value flows | A | A | B | A | A | A | A | B |
| • Describe business model for related actors | B | A | B | A | A | C | A | A |
| • Check the compatibility of interests | C | A | C | A | A | C | A | C |
| Implementation | | | | | | | | |
| • Develop engagement strategy | C | A | C | A | A | C | A | B |
| • Select parties for negotiations | C | A | C | A | A | C | B | B |
| • Build commitment and adapt value flow | – | A | – | B | C | C | – | C |
| • Balance value sharing in the network | – | A | – | B | C | – | – | – |

The comparison shows that the business network re-design framework matches well with all the cases. All phases have been implemented in all of the cases. All steps have been also executed during the cases. There is a bit more variation from case to case, which can be assumed because the framework describes the general way and each case applies it to a bit different context.

The last phase "implementation" has more variation than the other phases. The reason is due to the nature of the cases: some cases are consulting cases, where the consultant has carried out the analysis and the design, but not the implementation of the case. Some cases concerned software-as-a-service type services, and they were launched sometimes first and the business network implementation was a secondary task.

### 5.5.4 Answers to Research Questions in Phase 2

The research question of the research is

> *How do firms manage business analysis and design in the business network re-design situation?*

The supportive research questions are

- *How the methods presented in the literature are applied in the business network re-design context?*
- *Are there issues in empiric business network re-design situations that can extend knowledge found in the relevant literature?*

The answer to the research question is given as the business network re-design framework; refer to table 23 below (and chapter 5.5.1 for detailed description). The framework describes how firms manage business network re-

**Table 23.** Business network re-design framework based on phase 2
Symbols: A = Similar to the literature, B = Variation of the literature, C = Applied use in another context.

| Phases and steps | Vs. literature |
|---|---|
| Analyse the applicability of the initial value proposition | |
| • Define initial value proposition | A |
| • Create alternative solutions and enrich the value proposition | A |
| • Identify potential business networks regarding the domain | B |
| Select target business network(s) | |
| • Select the most potential business network(s) | B |
| • Understand the context of the business network(s) | A |
| • Define scope and boundaries of the business network(s) | A |
| Create a map of current state network | |
| • Define actors in the business network | A |
| • Define value flows in the business network | A |
| • Validate the business network map for completeness | A |
| Analyze network relationships | |
| • Analyze actors' characteristics | A |
| • Understand exchanges in the business network | B |
| • Analyze stakeholders' interests | B |
| Revisit the value proposition | |
| • Analyze the compatibility of the value proposition with the business & interests of the network | B |
| • Refine the value proposition if needed | B |
| Redesign the business network | |
| • Add the actor with the new value proposition in the network | B |
| • Define new value flows | A |
| • Describe business model for related actors and the actor with the new value proposition | A |
| • Check the compatibility of motivations and interests | B |
| Implementation | |
| • Develop engagement strategy | A |
| • Select parties for negotiations and approach them | A |
| • Build commitment and adapt value flow | A |
| • Balance value sharing in the network | A |

design as phases and steps. The framework is based on relevant literature and refined based on eight past empirical cases.

The first supportive research question is answered in chapter 5.5.2: comparing the business network re-design framework with relevant literature on page 77. The way the methods presented in the literature is also summarized in table 23. The methods presented in the literature match well with the business network re-design framework in general, because the most of rows in table 23 have an "A" in the rating column. However, different extant literature matches differently with the framework (refer to table 21 on page 78). The differences are discussed more in chapter 8.

It was possible to describe the business network re-design framework, and it was possible to link each phase and step to relevant literature. However, 15 steps out of 22 in the business network re-design framework were linked directly to relevant literature. Seven steps were applied in another way in the context of business network re-design. These are the rows in table 23 where there are no symbols A in the rating column. The answer to the last supportive research question is that there is a need to apply the steps found in the relevant literature in a different way than in the corresponding original literature. There is also difference in the sequence of steps in the business network re-design framework compared to the original literature. These differences are also covered more in detail in chapter 8.

# 6. Phase 3, Testing the Framework with a New Case

This chapter presents phase 3 of the current research where the business network re-design framework built in phase 2 is tested with a new empirical case.

## 6.1 Action Research in Phase 3

Empirical phase 3 includes a new case. The case concerns planning and designing the principles for a new register for apartment information in Finland. The case includes a large business network, and the register is going to change how many actors will carry out their business in the future. The case is described more in chapter 6.2.

The research in phase 3 is based on action research approach (refer to chapter 3.2.2) and it is carried out using the process defined in figure 17. The problem identification and getting pre-understanding step consists of identifying a business network re-design situation, and getting the understanding of the subject domain and details of the business problem. Planning and solution design step concerns how to apply the business network re-design framework and how carry out the specific project. The next step, action, requires to carry out the plan and to do everything to solve the problem in practice. If the plan or the framework is not fully applicable during the action, alternative solutions have to be argued and implemented. Last, the result needs to be evaluated, which relates to both practical implications and theoretical implications.

The framework to be tested is novel, and the researcher has to act as a facilitator in the projects. In other words, the researcher makes an intervention in the organization and makes observations. However, the customer and the stakeholders are responsible of bringing the knowledge regarding the substance and decision-making during the project. The problem solving is carried out as cooperation between the researcher and other stakeholders using workshops and planning meetings. The business network framework is refined according to the findings.

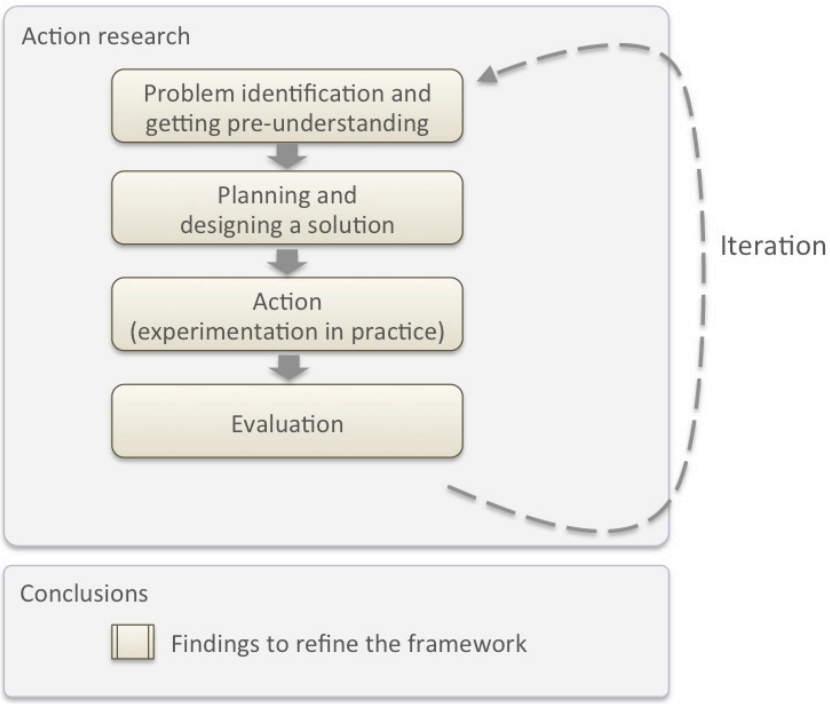



**Figure 17.** Action research process in phase 3, adapted from Kananen (2009)

## 6.2 Case Finnish Apartment Register

### 6.2.1 Problem Identification and Case Background

In 2009, Finnish government launched an Action Programme on eServices and eDemocracy, which is usually referenced by its acronym SADe. The idea of the SADe programme was to accelerate the development e-business services and e-processes in Finland. Every ministry named their candidates for the most important projects. One of the cases was the Finnish apartment register initiated by the Ministry of the Environment.

The Ministry wanted to evaluate how to establish a new electronic register taking care of the ownership information of apartments in Finland. Finland has a quite unique model how to handle the ownership of apartments: there is a limited company that owns the real estate. Each shareholder has a share that entitles the owner to have the possession of a specific apartment. There are about one million apartments in the limited companies having about two million inhabitants, which is close to 40% of Finnish population. Therefore, the register would have a remarkable role in Finland.

Currently, there is no central register where to have the information of the apartment ownership. Each limited apartment company keeps its own local register and a printed share certificate is used. Furthermore, many processes regarding the apartments are manual. To promote electronic business, the government wanted to have an investigation how the central register could be established.

The idea is to maintain a new central register of apartment companies, shares and ownerships. When the ownership of an apartment is registered in the central register, it is possible to buy and sell apartments, manage mortgages, control taxation, collect major overhaul information etc. in electronic format. In other words, the register creates opportunities for e-commerce, e-business and enables more accurate and up-to-date collection of information for many usages.

The pre-understanding of the domain was based on written documentation, preparation meetings and a workshop with the project team. There have been two earlier reports about the possibilities to have an apartment register in Finland (Uusivuori et al, 2004, and Honkajuuri-Kokkonen et al, 2012). There was also an overall project plan for all SADe projects in the Ministry of the Environment (Ympäristöministeriö, 2012). There were two preparation meetings with the project owner and one meeting with the representatives of four ministries (see table 24).

**Table 24.** Members in the case project

| Group | Member organization | Participants |
|---|---|---|
| Ministries | Ministry of Employment and the Economy | 1 |
| | Ministry of the Environment | 2 |
| | Ministry of Finance | 1 |
| | Ministry of Justice | 1 |
| Federations | The Federation of Finnish Financial Services | 2 |
| | The Finnish Real Estate Broker Federation | 1 |
| | The Finnish Real Estate Federation (real estate owners) | 2 |
| Consultants | Business consultant (including the researcher) | 2 |
| | Judicial consultant | 1 |

### 6.2.2 Planning and Designing the Solution

A project plan was made in September 2013 with the Ministry of the Environment. It had four workshops and 10-12 meetings with ministries. The working method was based on the business network re-design framework. The project plan concerned creating the plan for the register, not to implement it (which is estimated to take 4-6 years). The project was carried out between October 2013 and April 2014.

The case concerns dozens of actors, and they have different interests regarding such a register: the register is likely to be beneficial for some actors whereas some others may consider it as an extra cost only. The reason for business network analysis is to examine which actors have business regarding apartments, how the actors are related to each other, and how they are affected by the new register. Furthermore, the idea is to find how the register (innovation) could be established so that the key actors will favor the register, and the register would be beneficial for the ecosystem.

### 6.2.3 Experimentation in Action

The action part in the action research is described according to the phases of the business network re-design framework (see table 25 on page 91). Even though the phases have been introduced as subsequent phases, they are applied in an overlapping and iterative manner.

The first phase of the framework is to analyze the applicability of the initial value proposition. The initial idea of the register was set in the SADe overall project plan, but the team still questioned it to see if there are any other solutions or usages. The team also took a look on the operation of other similar government registers. A lot of situations were found where the register could be applied. These situations could be seen rather as potential sub business domains that were later mapped into one large network.

Next phase was to select target business network. The selection was to create a large combined network map based on the sub business domains. The primary actors were pointed out separately. Understanding the context of the network, defining the scope and boundaries, and the mapping of the current state network (see next phase) took place in parallel.

The current state network map started with identifying the actors, and after that the business connections (value flows) between the actors were added. This work took place piece by piece in sub business domains, which is one kind of iteration. After each piece was added, the network was checked for completeness. The validation of the diagram was also made in a workshop. The current state value network was so large, that it was divided into two different maps: primary actors (figures 18) and secondary actors (figure 19).

When analyzing network relationships, the primary actors were studied more detailed than the other, but still all actors' characteristics, relationships and exchanges were visited. The analysis of interests was made for the primary actors. Some actors were considered from the viewpoint of different internal stakeholders.

The phase of revisiting the value proposition included comparing the compatibility of the value propositions with the interests of the stakeholders. It was found that two separate value propositions are needed: (1) enabling e-business with ownership information and (2) enabling up-to-date data of all apartments. This fact caused the register to contain two sub-registers (explained more in detail in chapter 6.2.4).

The redesign the business network phase was carried out in parallel with the previous phase (revisiting the value proposition). The new actor (the new register) was added to the network to create the target state map. Because the current state network maps were quite complicated, the part of the network where the register affects the most was redrawn as the current state map (see appendix 1), and a target state map was generated for that part of the network. The new value flows were drawn, and the business models of the actors were revisited.

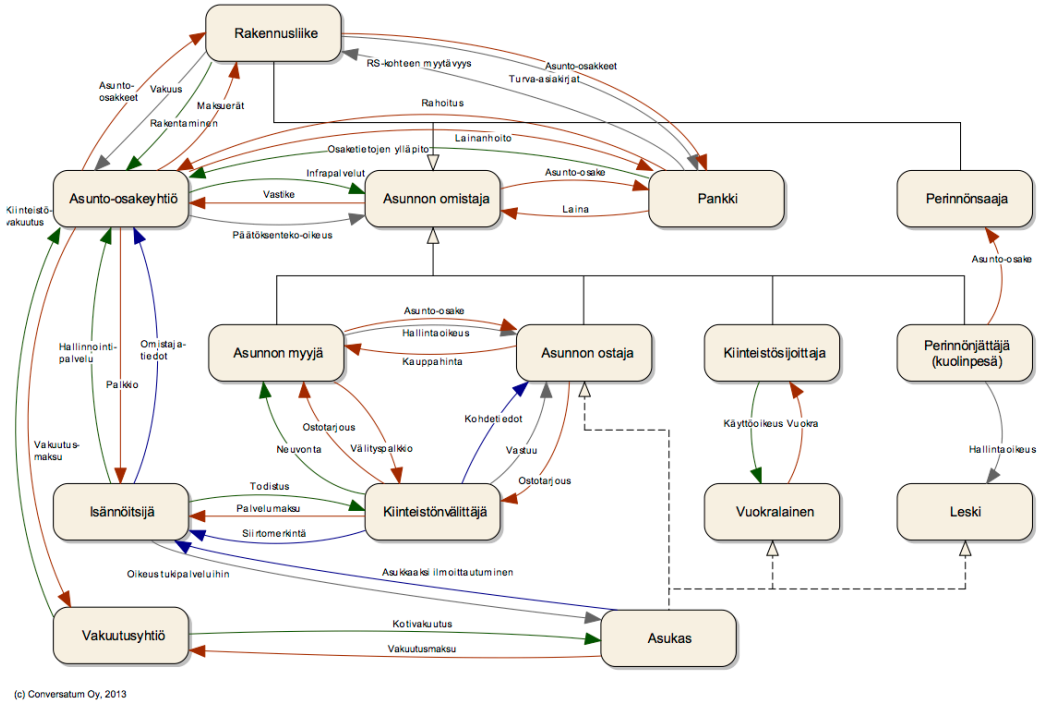



**Figure 18.** Current state value network of primary actors in apartment register
The notation used in value network diagrams is explained in chapter 7.2.2.
A larger version of the figure can be found in appendix 1.

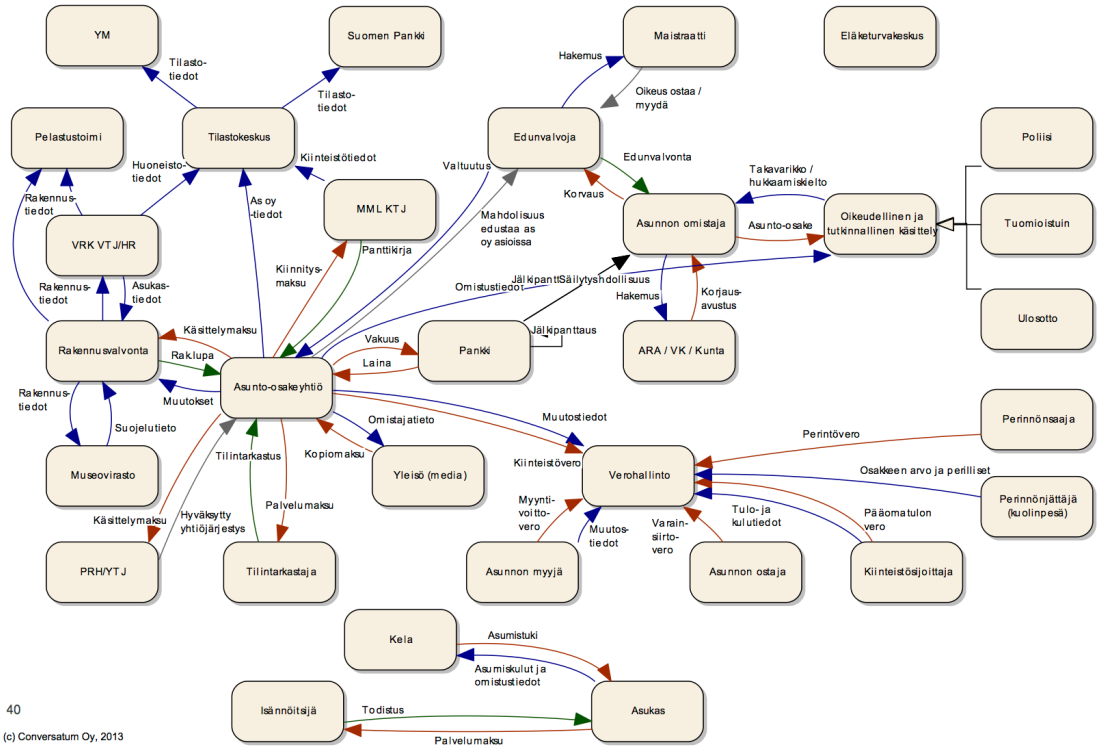



**Figure 19.** Current state value network of secondary actors in apartment register.

When regarding the implementation phase, the objective of the project was just to create a plan of the operations model of the register. The project identified to parties who should be included in the next project of designing the register. Furthermore, ways to build commitment were also anticipated in this project. The researcher was able to participate also in the next project – defining the service concept for the register, from November 2014 to April 2015. There, the implementation phase of the business network re-design framework was continued by selecting parties for negotiations, and building commitment for the new register. The final design of the register will take place later in 2015 and 2016.

### 6.2.4 Evaluation of the Case

The evaluation of the case consists of three parts: how the business network re-design was carried out compared with the framework, how did it solve the practical business problem, and are there any findings that would require adjustments to the framework.

*Evaluation of applying the business network re-design framework*

The evaluation how the business network re-design framework was applied in the case is shown in table 25. All the phases were applied in the case. The first five phases of the framework were followed as it is defined in the framework. The last two phases were followed, but there was some variation.

The definition of the business models was visited in a limited way, because the business of the new register will be defined by setting new laws and regulations that govern the actors to change their operation. The need for new legislation was defined. Furthermore, the business models of different actors were visited to see that the register would not have negative effects on the market. The engagement strategy defined as who are the key actors to engage in the design of the register and how they should be taken into account. It was decided that the final engagement strategy would be finalized later in the register design project.

Moreover, the parties for negotiations were pointed out, but the starting of the negotiations (approaching the other parties) was not a part of the original project. In the designing of the service concept for the register project in 2014-2015, 16 other parties were selected for cooperation. Still, the final negotiations will take place later when the planning and preparation continues in the government. It was not possible to participate and observe the very last steps in the framework.

**Table 25.** Evaluation of the case vs. the business network re-design framework
Symbols used in evaluation: A = used in the case similar to the framework, B = variation or limited use in the case, C = applied use in another context, – = not applied in the case

| Phases and steps | Evaluation |
|---|---|
| Analyze the applicability of the initial value proposition | |
| • Define initial value proposition | A |
| • Create alternative solutions and enrich the value proposition | A |
| • Identify potential business networks regarding the business domain | A |
| Select target business network(s) | |
| • Select the most potential business network(s) | A |
| • Understand the context of the network(s) | A |
| • Define scope and boundaries of the business network(s) | A |
| Create a map of current state network | |
| • Define actors in the business network | A |
| • Define value flows in the business network | A |
| • Validate the business network map for completeness | A |
| Analyze network relationships | |
| • Analyze actors' characteristics | A |
| • Understand exchanges in the business network | A |
| • Analyze stakeholders' interests | A |
| Revisit the value proposition | |
| • Analyze the compatibility of the value proposition with the business and interests of the network | A |
| • Refine the value proposition if needed | A |
| Redesign the business network | |
| • Add the actor with the new value proposition in the network | A |
| • Define new value flows | A |
| • Describe business model for related actors and the new actor with the new value proposition | B |
| • Check the compatibility of motivations and interests | A |
| Implementation | |
| • Develop engagement strategy | B |
| • Select parties for negotiations and approach them | B |
| • Build commitment and adapt value flow | B |
| • Balance value sharing in the network | C |

### *Implications to Refine the Framework*

Even though the case matched very well with the business network re-design framework, there is one finding, which deviates to some extent from what is described in the second phase in the current research, and a couple of findings that regard the value network mapping techniques.

The deviating finding concerns the cooperation during the business network re-design. In phase 1, it was typical that the firm having the innovation carried out the business network re-design without any major cooperation with other parties before the last phase where the implementation of the re-designed network starts. In this case, the Ministry of the Environment invited a number of parties to join the workshops and meetings from the beginning of the project. All the project members participated in setting the objectives of the regis-

ter and giving input for alternative usages for the register. The researcher and the manager of the ministry created the current network map, and the other project team members were able to verify and refine the network map.

The researcher and the manager of the ministry found that there are two separate value propositions needed – causing the register to contain two sub-registers. The finding was presented to the representatives of the four ministries[10]. They considered the idea a bit surprising, because it changed the original idea of the register. After a discussion, everybody in the meeting wanted to go on with the idea – an instant decision was made. The idea was presented to other members for a discussion in the next workshop. The new value propositions changed the new network also: it made information services more visible and important in the operation of the register.

The other participants than the representatives of the four ministries were participants representing federations, not representatives of firms who operate in the market. The attitudes, requirements and ideas of different firms were taken into account by making 25 interviews during the analysis of the register. Thus, the true actors in the business network did not participate in the cooperation, but the associations representing the firms did.

To summarize, there was cooperation and co-ideation with other parties during the project, but the parties were not participating equally. The Ministry of the Environment (and the researcher as the consultant) took care of the most of the analyses and preparations for decision-making. The group of the representatives of the ministries had more power in decision-making, and the rest of the project team was rather commenting and accepting the decision.

There was also some practical value network modeling issues that were not fully covered by the framework or relevant literature:

- The value flows have four different types (goods and services, money, information and intangible value). Sometimes it was not easy to determine, which type should be used. The literature did not specify it fully, when to select which type. For example, sometimes it is difficult to distinguish information and intangible value (when someone gets intangible benefit which is based on getting information), and sometime information and service (when it is a service that also provides new information, or is it just information).
- Sometimes a value flow concerns two separate values, e.g. getting the shares of a apartment company entitles the owner to the financial value of an apartment and to the authorization to possess the apartment (to live there or to let it for rent). The asset has both a monetary value and a value as goods.
- There is sometimes a need to have actor's main role and sub-roles in the model (for example owner of the apartment, and its sub-roles

[10] The project had two different kinds of meetings. The representatives of the ministries had more frequent meetings, and the whole project group gathered to workshops that were organized in 5-6 weeks periods.

seller, buyer, investor etc.). The literature did not tell how to handle this kind of a situation. The solution was to use Unified Modeling Language notation of generalization (Object Management Group, 2015).

- Similarly, there was a need to show that many actors might act in some other role (for example an owner, a tenant and a widow act as a inhabitant). The solution was to use UML notation of realization (Unified Modelling Language, 2013).
- The literature gave some checklists for value networks. One of them stated that there should be a balance: each actor should receive and give value flows. However, when it comes to public authorities, there were value flows to one direction only (for example the payment of a tax). To fulfill the condition of balance, there could be an intangible value of "fulfilling my responsibility" or "avoiding a sanction". However, such quasi-value flows do not give any more information and were omitted from the model.

The main phases and steps of the business network re-design framework were not changed – the framework presented in table 23 is still valid. When applying the framework, it is possible that the firm having the innovation may start some cooperation with other actors in the network. However, the firm having the innovation leads the cooperation and decision-making. When concerning more detailed issues in the framework, a guideline how to use value network notations was added the research framework. The guideline is presented in the results of the research (see chapter 7.2.2).

### 6.2.5 Implications to Business

The case project was carried out according to the plan. The customer's business issue was solved. The planned model of the new register was published as a report (Tahvanainen et al, 2014), and there was a press conference and a seminar for the organizations that will be concerned by the register.

Three key persons in the case project were interviewed at the end of the case study to ensure that the case project fulfilled its practical contribution and to evaluate the experience of business network re-design compared to other known cases or methods. I.e. the interviews were used to support and verify findings made as observations. The topics of the interview are described in chapter 3.3.2 on page 31.

The interviewees found the approach suitable for the situation and the results of the project fulfilled their expectations. The approach helped in getting the full picture of the issue, and assisted in reaching mutual understanding how different solution alternatives affect. According to the interviews, the progress of the case was considered untroubled and the project team was given new issues to be considered in a fitting and timely manner. Reaching mutual understanding throughout the project helped the project to be efficient – there was no need to come back to some earlier issue because of different opinions

of what has been achieved so far. In contrast, two of the interviewees felt that in many similar projects it is typical that the project gets jammed because someone wants to return to an issue that was agreed earlier.

Furthermore, it the approach made it possible to find out that there are two different basic needs in the business network that require a remarkable change in the way the register works. That is, there has to be two different value propositions. According to the interviewees, it would have been hard to find this fact without the business network approach.

The first value proposition regards electronic ownership handling, which enables apartment deals in electronic format. The other value proposition concerns valid up-to-date information about all apartments in Finland. At first glance, it seems that the both value propositions could be implemented in one go. However, the transition period to register all existing apartment shares and their ownership information in Finland takes many years. Some estimates consider that the transition may take one or two decades. As a result, the register should have two sub-registers: one for maintaining the ownership information of shares in electronic format, and another containing information about all limited apartment companies and shares. The first sub-register will contain just a small portion of all apartment ownerships in the first years, and the portion will grow year by year when more shares are converted to electronic format. The other sub-register will be based on existing information flows, and will contain the basic information of all apartments from the beginning.

The interviewees were also asked if they had used any other methods in a similar situation. The interviewees told that the situation was quite unique and they could not figure out any other method to compare with. They said that typically some expert or a group of experts make just a textual report, which does not logically or visually explore the situation and relations of different actors.

The program manager at the Ministry of the Environment described the implications of the business network re-design as follows:

> We started with understanding the network of actors related to the register, and then we analyzed deeply the aims, needs and interests regarding the register. This way, it was possible to find out that the register needed to have a broader scope than originally anybody expected. The information service part and the dualistic model of the register were found. I think we couldn't have found out this without the approach that was used – like the report published 10 years before did not have this part at all. Also the idea of using existing parties as local representatives of the register authorities was based on the network analysis. The network approach and analysis of interests made it much easier to have common understanding about the case. For example, it was possible for two very strong-minded team members to find consensus about the register, and it was possible to publish the report without any major disagreements[11] – which is not the case in all government reports.

[11] In this kind of reports, some team members may insist that their disagreement has to be documented in the report.

# 7. Results

This chapter discusses the results of the present research. It summarizes the research and the findings. The final business network re-design framework is described on the basis of the findings of the case study research (described in chapter 5) and action research study (described in chapter 6). Furthermore, the research problem is revisited and the research question is answered in this chapter.

## 7.1 Summary of the Research

The research concerned a situation where a firm enters to new market with an innovation and cannot make use of its existing business models and relationships. To enable business in the new market, the firm has to understand the business networks in the targeted domain. Furthermore, the firm should be able to find a position for itself in the business network. This approach requires a reengineering task concerning the business network.

Previous research has shown that using value networks is a suitable approach that describes interactions between different business actors in a business network. Previous research has also pointed out that value networks can be used to understand discontinuity (Ghezzi, 2013) and explain why newcomers in the market may have an advantage over incumbent firms (Christensen & Rosenbloom, 1995, and Christensen, 2003).

The aim of the research was to understand how business network re-design operates in practice: how business networks and especially reengineering the networks could be used in order to find a proper business model during the commercialization of innovations. The research problem was to evaluate how firms manage the described situation in practice and how known theories could be applied there. The objective was to create a comprehensive set of methods or framework in the business network re-design context. The research question was defined as "*How do firms manage business analysis and design in the business network re-design situation?*"

First, a literature review was carried out to see how the phenomenon and the research problem has been concerned by previous research, and to identify relevant concepts for the current research. The literature of innovations and commercialization, business networks, value network analysis, designing eco-

systems and business reengineering was investigated. The value network analysis (Allee 2000; Fjeldstad & Ketels, 2006; Malinen & Haahtela, 2007; Allee & Schwabe, 2015; Albadvi & Hosseini, 2011) shows how to analyze business networks, but it does not guide how to reengineer business networks. Designing ecosystems (Den Ouden, 2012) describes the phases needed to create a brand new ecosystem when the focal firm is influential enough. However, the approach has assumptions that are not necessarily valid for business network redesign situation (refer to table 2 on page 22). Business reengineering is an approach to rebuild a firm's business (Hammer & Champy, 2001). It has been suggested that the same approach could be extended to business networks (Hewitt, 1994; Venkatraman, 1994), but the literature gives little advice how to do it in practice.

Individual methods for business analysis and business development were identified in the literature, but they were considered suitable as partial solutions only. Little extant research was about how to re-design business networks. A comprehensive and coherent set of methods or a framework how to apply the identified methods in the context of business network re-design was missing. The research continued in three phases in order to answer to the research question.

In the first phase, themes and aspects were extracted from the relevant literature in order to create a preliminary business network re-design framework. The framework for business network re-design was refined in the second phase of the current research. The study was based on a case study strategy, and especially on the inductive research approach of building theories from case study research of Eisenhardt (1989). Eight cases having a business network re-design approach were studied, and a framework for business network re-design was composed out of the findings. The framework was enfolded with relevant literature during the creation of the framework. At the end of the case study, the framework was also compared with relevant literature, and it was found that it has strong connections with the extant literature. Still, the framework differs from the earlier theories because the context of business network re-design is different from those of the earlier theories (refer to table 21 on page 78).

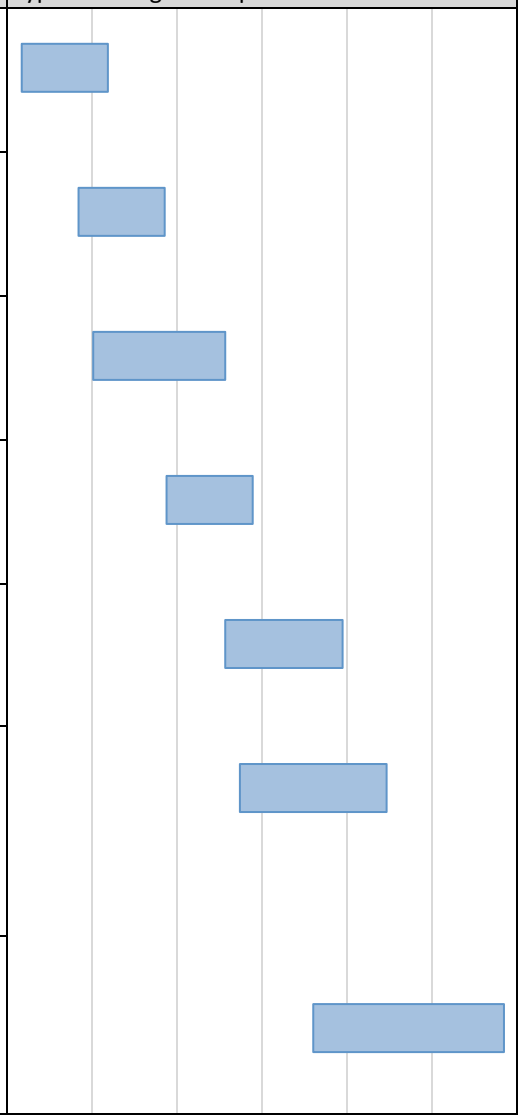
The cases in the phase 2 were carried out some years earlier, and the data were based mainly on interviews of different stakeholders and written documents. The third phase of the research involved a case based on action research strategy. Here, the researcher made an intervention so that the business network re-design framework was applied in the new case. The data is based on observations, interviews and written documents. The framework was tested and refined according to the findings in the new case. The final business network re-design framework is described more in chapter 7.2.

## 7.2 Constructs Created

### 7.2.1 The Business Network Re-Design Framework

The research issue was about to analyze and design a target area business network during the commercialization of an innovation. A new construct was created in the research: the business network re-design framework. The framework describes how firms manage business network re-design, and it consists of seven main phases are applied in an overlapping and iterative manner (see table 26).

**Table 26.** The final business network re-design framework
An example of timing (overlapping) of the different phases is shown on the right hand side column.

| Phases and steps | Typical timing of the phases |
|---|---|
| Analyze the applicability of the initial value proposition<br>• Define initial value proposition<br>• Create alternative solutions and enrich the value proposition<br>• Identify potential business networks regarding the domain |  |
| Select target business network(s)<br>• Select the most potential business network(s)<br>• Understand the context of the network(s)<br>• Define scope and boundaries of the business network(s) | |
| Create a map of current state network<br>• Define actors in the business network<br>• Define value flows in the business network<br>• Validate the business network map for completeness | |
| Analyze network relationships<br>• Analyze actors' characteristics<br>• Understand exchanges in the business network<br>• Analyze stakeholders' interests | |
| Revisit the value proposition<br>• Analyze the compatibility of the value proposition with the business and interests of the network<br>• Refine the value proposition if needed | |
| Redesign the business network<br>• Add the actor with the new value proposition in the network<br>• Define new value flows<br>• Describe business model for related actors and the new actor with the new value proposition<br>• Check the compatibility of motivations and interests | |
| Implementation<br>• Develop engagement strategy<br>• Select parties for negotiations and approach them<br>• Build commitment and adapt value flow<br>• Balance value sharing in the network | |

*Phases 1 and 2: defining the idea and the target market*

The first phase is to analyze the applicability of the initial value proposition. This phase includes steps where the team gets a shared understanding about the innovation and its possibilities. First, the definition of the initial value proposition is made explicit – for example answering questions like what is the principal idea, who is the customer, what the customer gets, and what kind of a business we do here. Next step involves finding alternative solutions or usages of the value proposition (for example answering questions like "could we extend the usage", "could we apply it somewhere else"). Based on the previous steps, the phase in concluded by identifying potential business networks where to apply the innovation.

Phase two regards selecting the target business networks. Based on the results of the previous phase, the identified business networks are evaluated, and the most potential ones are selected for further analysis. Sometimes there are many different business networks (that is, different domains of business), but sometimes it can be just one network. Or, there might be a couple of identified business networks, but they are seen as sub-networks of a larger setting. The next step is to understand the context of the chosen networks. This includes also the definition of the scope and boundaries of the networks. That is, what is the relevant business domain: who are the most essential actors in the network and what business they make. The better the scope and boundaries are set, the easier it is to analyze the network.

*Phases 3 and 4: understanding the current business*

The third phase is to create a map of current state network of the chosen networks. Each network is analyzed separately using value network analysis techniques: defining actors of the existing business network, and the value flows (transactions) between the actors. This analysis concentrates in the current state of existing business networks – it does not yet involve the newcomer and its business ideas. At the end, the maps should be validated for completeness – for example answering to questions like "Does the map show all essential connections for each actor," and "Does the map explain known dependencies," and "Does every actor give and receive some value?"

The fourth phase is to analyze network relationships of the current state value network map. It includes analyzing actors' characteristics, understanding exchanges and relationships between the actors, and analyzing the interests and motivations of different actors and stakeholders. If the current state value network map is large, it is vital to concentrate in the most important actors: the ones that are the most central in the network, and those who the firm's value proposition is likely to affect (the core of the network). There are always secondary actors, who rather support the core network. It is good to analyze also the secondary actors, but they need not to be analyzed as detailed as the core members of the network.

*Phases 5 and 6: finding the position for the firm and its innovation*

In the next phases, the issue is to have a balance with the value proposition of the firm and the re-designed business network. This means both to adjust the value proposition to meet the business and interests of the key actors in the current business network (phase 5 of the framework), and to re-design the existing business network to meet the value proposition (phase 6). In other words, phases 5 and 6 are highly overlapping and there is iteration between these two phases.

The fifth phase is labeled as "revisit the value proposition". It involves analyzing the compatibility of the value proposition with the business and interests of the actors in the current state business network. Furthermore, the value proposition is refined if needed to obtain compatibility. This is not only altering the value proposition based on the interests of different actors in the network. It is also identifying how well the interests of some actor and the idea of the innovation are aligned. Sometimes, an actor is assumed to be a pure competitor to the entrant firm, but it may be revealed that the actor is a potential partner instead. Sometimes it is also vital to understand that it is not possible to find commitment with some other party because they are having totally different interests.

In phase 6, the business network is re-designed. The firm with the new value proposition is added in the business network, and the new value flows with other actors are defined. Basically, it is possible that the new value proposition may also require some changes to the value flows between the adjacent actors to the entrant and some other actors. The business model of the firm with the new value proposition is described, and the business model of each of the related actors in the network map is specified. It is vital to see that the earning logic of the related actors fits with the new value proposition. It is also important to check the compatibility of motivations and interests of each actor in the map with the value proposition.

*Phase 7: ramping up the new business*

The last phase of the framework is implementation phase, and it is also heavily overlapping with the fifth and sixth phases. In principle, the business network re-design is carried out already during the previous phase. However, it is possible that the new network may need refining when new issues are faced during the implementation. Moreover, changes in the network may also require changes in the value proposition. That is, changes to business plans in the implementation phase may require iteration back to phases 5 and 6.

The implementation phase starts with developing an engagement strategy and selecting parties for negotiations and approaching them and continues by building commitment. The implementation means adapting value flow model of the new re-designed business network. When the negotiations go on, it is likely that some new issues arise. It may require adjusting the value proposition and the business network model. Furthermore, the changes may require

balancing the value sharing in the network even more: if the earning model of one actor is changed, it will alter the situation of the other actors, too.

### 7.2.2 Value Network Mapping Issues

The business network re-design framework is the key outcome of the research. In addition to the framework, some minor issues were found during the research. The notation used in value network maps was found inadequate, and a practical guideline was developed during the action research phase. The most important additions to the mapping techniques were to include the notations of sub-actors and acting as another actor (see figure 20, and also chapter 8.2.2).

Figure 20 shows only the key issues of value network diagrams. More instructions about basic value network mapping techniques can be found for example in the books of Allee & Schwabe (2015) and Den Ouden (2012). Inheritance (sub-actors) and realization (acting as another actor) can be found at the documentation of Unified Modeling Language (2013).

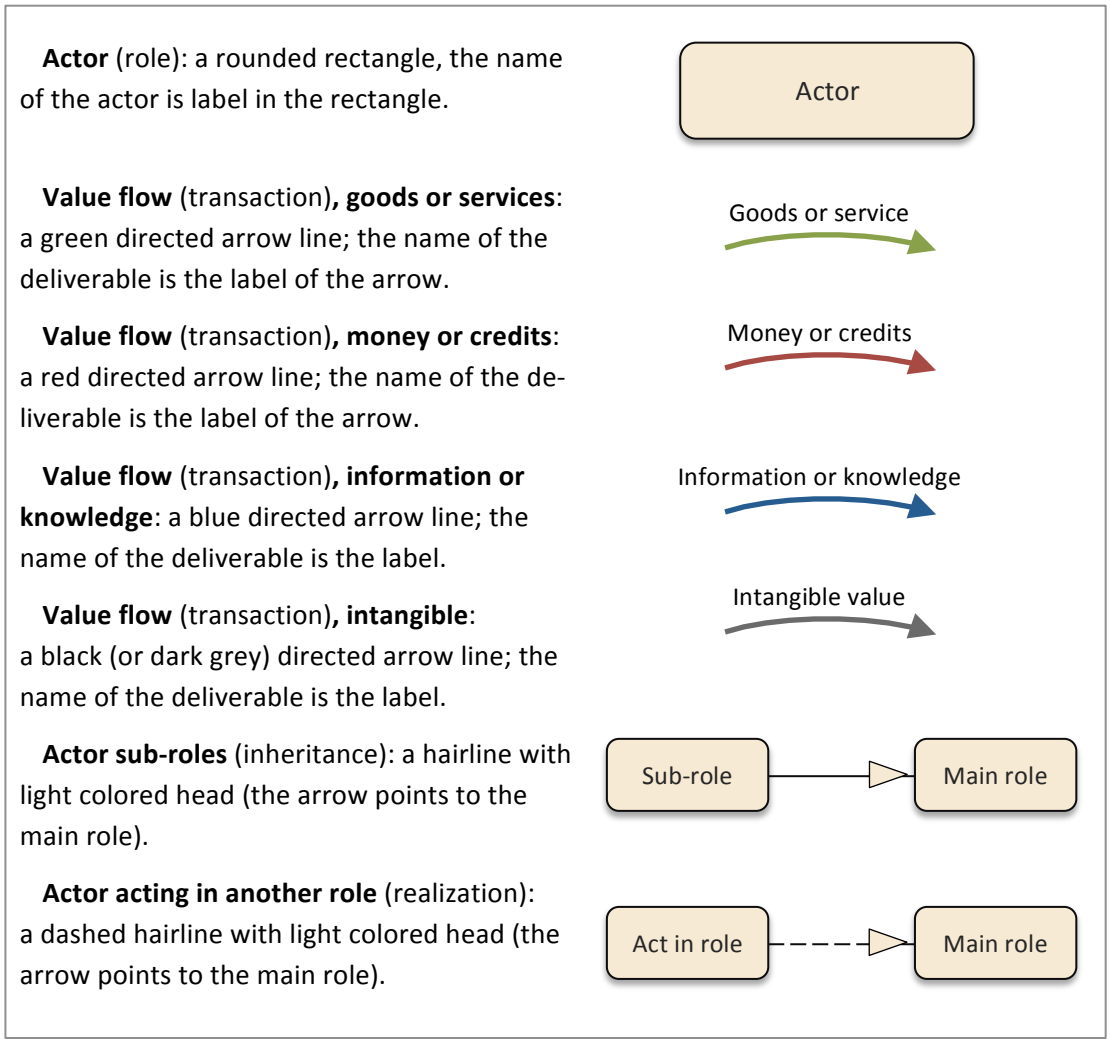



**Figure 20.** Notations used in value network diagrams

Sometimes there are difficulties to judge the type of flow to be used in the value network diagrams. Here are some hints in addition to what is described in the literature:

1. Money or credits value flow is used for payments, loans etc. It can be used also for other transactions where the exchange concerns something that is having a monetary meaning. For example, when people treat a share certificate as something worth of money in a transaction, its value flow type is ”money or credits”, because it is considered as an investment instrument. See also the next hint.
2. When a deliverable has a dualistic value, then it should be shown also in the diagram. For example, a share certificate has a monetary value (refer to hint #1), but it also entitles the owner to use the apartment for living purposes. Here, the share has a second meaning as intangible value. In a case like this, the arrow should be split into to adjacent arrows of different types having their own labels (the name of the delivered value). The dualistic flows should be used with care: in most cases there should be just one type of flow used, the dualistic one should be an exception that is used seldom.
3. When to use ”goods or service” and ”information or knowledge” as the value flow type? The problem arises for example (1) when there is a service that provides information to the receiver, (2) when a report, warrant or certificate is given (a piece of paper handing out information). The form of the deliverable is not remarkable, but the value. The key question is: does someone provide a service to the receiver (either as a professional service or as an amateur)? Does the potential service-provider something on behalf of the receiver, or help him/her in his/her process? If ”yes”, then it is a service flow. If something is done as a professional service, then it is also a clue that the value flow is a service.
4. When to use intangible flow instead of e.g. information flow? If the deliverable entitles the receiver a right to something, or changes the situation of the receiver somehow, it is a clue that the flow is of intangible nature.
5. Is the requirement of reciprocity mandatory – can there be flows to just one direction without a flow coming back? Basically there should be reciprocity, but there are two exceptions. First, the back-coming flow might be indirect – coming through a third party. Second, some flows with public authorities are one-directional. For example some information or money is given to tax authorities, but nothing is given back in the diagram (unless we want to make a network diagram of the whole societal system). Many times there is at least an intangible back-coming flow if no other can be found. For example, when a resident of an apartment gives his/her information to the estate manag-

er, he/she is entitled to get some services related to the real estate after that. So, the right to get services is the intangible back-coming flow.

## 7.3 Answers to Research Questions

The research issue is about to analyze and design a target area business network during the commercialization of an innovation. The research question was:

> *How do firms manage business analysis and design in the business network re-design situation?*

The sub-questions were:

- *How the methods presented in the literature are applied in the business network re-design context?*
- *Are there issues in empiric business network re-design situations that can extend knowledge found in the relevant literature?*

The research question "*How do firms manage business analysis and design in the business network re-design situation?*" is answered in chapter 7.2.1 as description of the business network re-design framework. It shows how firms manage business analysis and design in the business network re-design situation in 22 steps in seven phases that are overlapping and iterative in the nature. All cases in phase 2 in are well aligned with the framework (refer to table 23 on page 83), and so is the new case in phase 3 (refer to table 25 on page 91).

The first sub-question "*How the methods presented in the literature are applied in the business network re-design context?*" is answered in chapter 5.5.4. The business network re-design framework fits well the methods presented in the value network analysis, designing ecosystems and business reengineering literature (refer to table 21 on page 78). However, the business network re-design framework differs from the three proposed earlier theories. None of the earlier theories are used as such in business network re-design, but they are applied in the framework.

The answer to the second sub-question is that there are some differences in business network re-design framework compared to the extant literature. There is the sequence of the steps and the way to apply seven of the 22 steps differs from the literature to some extent. These differences suggest that business network re-design extends the relevant literature regarding the specific situation of business network re-design. The differences are discussed more detailed in chapter 8.

# 8. Discussion and Conclusions

A framework for business network re-design was created and tested in the research. This chapter summarizes the research and its findings. The chapter also evaluates the contribution, validity and reliability of the research. Furthermore, the limitations and issues for further research are discussed here.

## 8.1 Main Research Findings

The research concerned business network re-design where a firm is having an innovation, but the existing business models and business relationships of the firm cannot be used. Furthermore, the firm makes an intervention to an existing business network, and tries to manipulate or reengineer the network to enable the business of its new innovation. The research problem was to understand how firms can analyze and design a target area business network during the commercialization of an innovation, and the aim of the research was to create a comprehensive set of methods or framework in the business network re-design context. The research question was "*How do firms manage business analysis and design in the business network re-design situation?*"

The research problem is challenging for all firms who are planning to enter a new market. The research contributed to improved understanding of this phenomenon and to relevant theoretical approaches. Furthermore, the research has practical implications by describing a comprehensive approach for managers.

The first phase of the current research started with gathering aspects and themes from relevant literature. Three different approaches (value network analysis, designing ecosystems and business reengineering) were visited, and applicable themes were summarized in chapter 4.2.

Eight cases were analyzed in the second phase of the current research using the approach of building theories from case research of Eisenhardt (1989). When analyzing the cases, repeating patterns connected to the themes found in the second phase were found. On the basis of the repeating patterns and enfolding literature, a framework for business network re-design was created. The framework describes the phases and steps how to carry out business network re-design. The framework fits well both with all empirical cases and with the relevant literature.

The principle of the framework is similar to business development with gap analysis. Business network re-design starts with defining what is desired, and it continues with analyzing the current state of business networks. Next, the target state is determined, and a plan for getting from current state to target state is made. Finally, the plan is implemented – keeping in mind that the plan may need revising during the implementation.

The framework was validated in the third phase of the research. A new case was implemented with action research strategy where the researcher made an intervention to a firm and applied the framework created in the second phase of the research. The result was that the business network re-design framework was applicable also in the new case. The business problem was solved, and the plan for the new register was published as a report. The managers considered that the approach was suitable for the situation and the results of the project fulfilled their expectations.

## 8.2 Theoretical Contribution of the Research

The research contributes to theory by extending and merging three different approaches to a coherent methodology for business network re-design. Value network analysis (Allee & Schwabe, 2015) is typically used in the analysis of current state business networks. Business network re-design shows how to extend value network analysis to redesigning business networks. Designing ecosystems (Den Ouden 2012) considers how to design a business network from scratch. Business network re-design extends designing ecosystems to have existing business network as the starting point of designing an ecosystem. Business reengineering (Hammer & Champy, 2003) was seen also as a potential approach, but not so evident for business networks context. Current research shows that business reengineering can be applied to business networks as Hewitt (1994) and Venkatraman (1994) have suggested.

*Bringing the Three Approaches Together*

The business network re-design framework was defined gradually by identifying and merging aspects and themes from relevant literature, and by analyzing how the themes were applied in empirical cases. Table 27 shows the summary how the three different approaches (value network analysis, designing ecosystems and business reengineering) were applied in business network re-design framework. The table shows what are the corresponding themes in each approach for each step in the framework.

Every step in business network re-design framework (in column “BNR” in table 27) has at least one corresponding theme found in some of the three approaches. There are no steps that are not having any related theme in the literature. This shows that business network re-design framework has firm connections to existing theories.

**Table 27.** Business network re-design framework vs. original themes

How themes from value network analysis (VNA), designing ecosystems (DE) and business reengineering (BR) were applied in business network re-design. Descriptions are shortened; see referenced tables for longer names (abbreviations: VP=value proposition, BN=business network).

| BNR phases and steps (refer to table 18) | Derived from VNA (refer to table 8) | Derived from DE (refer to table 9) | Derived from BR (refer to table 10) |
|---|---|---|---|
| 1. Analyze the applicability of the initial VP | | | |
| • Define initial value proposition | • | • Define initial value proposition | • |
| • Create alternative solutions and enrich the value proposition | • | • Create alternative solutions; Enrich value proposition | • |
| • Identify potential BN's regarding the domain | • | • | • Identify potential BN's regarding the domain |
| 2. Select target business network(s) | | | |
| • Select the most potential BN(s) | • | • | • Select the most potential BN(s) |
| • Understand the context of the BN(s) | • | • | • Analyze what the business network does; Analyze how well the BN performs |
| • Define scope and boundaries of the BN(s) | • Define scope and boundaries of the BN(s) | • | • |
| 3. Create a map of current state network | | | |
| • Define actors in the business network | • Define roles or participants in current state BN | • | • |
| • Define value flows in the business network | • Define transactions in the current state network | • | • |
| • Validate the BN map for completeness | • Validate the BN map for completeness | • | • |
| 4. Analyze network relationships | | | |
| • Analyze actors' characteristics | • | • Analyze stakeholders' characteristics | • |
| • Understand exchanges in the BN | • Analyze exchanges in the business network | • | • |
| • Analyze stakeholders' interests | • | • Identify stakeholders of the VP; Identify stakeholders' interests | • |
| 5. Revisit the value proposition | | | |
| • Analyze the compatibility of the VP with the business and interests of the BN | • | • Analyze compatibility of VP with the interests of stakeholders | • |
| • Refine the value proposition if needed | • | • Analyze compatibility of VP with the interests … | • |
| 6. Redesign the business network | | | |
| • Add the actor with the new VP in the BN | • Optimize value flows; Make improvements | • Analyze and improve the value flow model | • |
| • Define new value flows | • | • Create value flows; Analyze and improve … | • |
| • Describe business model for related actors & the new actor with the new VP | • | • Define business models at actor level | • |
| • Check the compatibility of M & interests | • | • Analyze compatibility of VP with the interests … | • |
| 7. Implementation | | | |
| • Develop engagement strategy | • | • Develop engagement strategy | • |
| • Select parties for negotiations | • | • Select first pick of parties for implementation | • |
| • Build commitment and adapt value flow | • | • Approach the organizations and build commitment; Adapt the value flow model | • Negotiate about business roles with other actors; Deploy the new business network |
| • Balance value sharing in the network | • | • Balance value for all parties | • |

The table also shows that business network re-design framework applies all of the three approaches – suggesting that business network re-design framework cannot be seen just as a subset of one approaches in the literature. Instead, it combines and merges three different approaches to a new framework.

Some of business network re-design steps are linked to more to one theme in relevant literature, and in some cases the related themes consider different approaches in literature. This indicates that business network re-design framework is not just a reorganized list of themes. Instead, the original themes were refined during the research to suit to the business network re-design situation.

### 8.2.1 Applying Value Network Analysis

Value network analysis (Allee & Schwabe, 2015) is used to analyze a business network. The analysis contributes to understanding the network, finding causes of problems and chances for optimizing or improving the network. However, value network analysis does not describe how to actually design changes to the business network. Business network re-design framework extends the value network analysis approach with the analysis of interests and to reengineering situations by describing how to carry out the re-design effort.

Value network analysis has seven themes that were applied in business network re-design framework directly (see table 28). Value network analysis starts with selecting some business network, defining its scope and drawing the current state map, which is similar to phases 2 and 3 in business network re-design (refer to table 27).

The second phase in value network analysis is analyzing the current state map, which covers checking of value exchanges, flows and dependencies. Phase 4 in business network re-design concerns similar issues, but it involves also the analysis of interests, which is not described in value network analysis. Three value network analysis themes were not applied directly in business network re-design framework (labeled as "Not directly" in table 28). Similar

**Table 28.** Usage of themes in value network analysis

| Phase (aspect) | Theme | Usage in BNR |
|---|---|---|
| Create current state map | Define the scope and boundaries of the business network | Applied |
| | Define roles or participants in the current state network | Applied |
| | Define transactions in the current state network | Applied |
| | Validate the business network map for completeness | Applied |
| Analyze current state map | Analyze exchanges in the business network | Applied |
| | Impact analysis (how an actor create value from its inputs) | Not directly |
| | Analyze value creation and sharing | Not directly |
| | Analyze perceived value | Not directly |
| Optimize the network | Optimize value flows | Applied |
| | Make improvements to the network | Applied |
| | Eliminate unnecessary roles from the network | Not directly |

issues were included in business network re-design framework, but best matching themes were found in another approach in relevant literature (designing ecosystems). Thus these themes are not mapped to business network re-design framework in table 27.

The last phase in value network analysis regards optimizing the network – typically improving the value flows and eliminating unnecessary roles. Phase 6 in business network re-design concerns also improving the network, but the scenario is rather to alter the business network with new actor and new value creation rather than improving existing business network.

Phases 1 and 5 do in business network re-design framework not have corresponding steps in value network analysis, because value network analysis does not describe how to manage new value propositions. We can assume that value network analysis should have an implementation phase, but it was not expressed in the literature explicitly how to carry out the implementation.

*Mapping techniques*

Value network analysis provides the mapping techniques that are used in business network re-design: actors as nodes, flows as arrows, deliverables as tags, and four color codes for arrows denoting different types of value flows. The present research found some situations, where the notation was not sufficient, and the research extended value network analysis with some additions to mapping techniques.

First, there was a need to express sub-actors in a value network map in business network re-design. A notation for sub-actors is needed, when there is an entity such as “owner” and it has sub-types like “seller”, “buyer” and “heir”. All value flows, which are common for all sub-types of owners, can be attached to the main entity “owner”. Value flows, which are unique to a sub-type, are attached to the sub-type of owner only. In principal, it is possible to use the sub-types only and draw the common flows to all sub-types separately. However, this would make the diagram fuzzy. There is also need to see the main entity in the diagram, and to understand that there are sub-types having some differences. Therefore an extended notation was required. The present research applied the notation of inheritance in Unified Modeling Language to the value network map (refer to chapter 7.2.2). Using the new notation made the diagram clear and precise.

There was also another issue, which is similar to the sub-actors: an actor acting in another role. For example, an owner, a tenant and a widow can be residents in apartments. We could draw value flows regarding residency to all different actors, but it would make the diagram complicated. It was decided to use the realization notation of Unified Modeling Language to denote an actor acting in some other role. An actor called resident was added, and the actors who can act as residents were attached to the resident actor using “act as” connector in the diagram.

The present research also found some occasions where the guidelines described in value network analysis (Allee & Schwabe, 2015) were not explicit.

For example, it was difficult to choose which type of value flows should be used in some special cases. Value network analysis suggested finding reciprocity in all value flows, but the present research found an exception. The present research provided a new guideline for the special cases (refer to chapter 7.2.2).

### 8.2.2 Applying Designing Ecosystems

Designing ecosystems approach (Den Ouden, 2012) concerns a situation where a brand new ecosystem is designed. It starts with an initial value proposition, and an ecosystem is designed around it. Actors are considered as empty roles in the first place. There can be some analogies to existing businesses, but the design is based on the needed actors for the value proposition. The approach does not cover how to start from existing networks and re-design them. Business network re-design framework extends the designing ecosystems approach to reengineering situations where the design is based on reorganizing the existing business network.

Designing ecosystems has five main phases (refer to table 29), which have similarities with the seven phases of business network re-design framework (see table 27). Both approaches start with specifying the initial value proposition. Designing ecosystems has also some early steps here that are not included in the business network re-design framework. This is rather how the scope of business network re-design is defined. Issues like “get insight” and “problem

**Table 29.** Usage of themes in designing ecosystems

| Phase (aspect) | Theme | Usage in BNR |
|---|---|---|
| Inspiration | Understand the challenge | Not applied |
| | Get insight | Not applied |
| | Problem framing | Not applied |
| | Define initial value proposition | Applied |
| Select parties for ideation | Identify and understand potential parties | Not applied |
| | Select parties for ideation | Not applied |
| | Create alternative solutions | Applied |
| | Enrich value proposition | Applied |
| Identify stakeholders | Identify stakeholders of the value proposition | Applied |
| | Analyze stakeholders’ characteristics | Applied |
| | Identify stakeholders’ interests | Applied |
| | Analyze the compatibility of the value proposition with the interests of stakeholders | Applied |
| | Define stakeholder management strategies | Not directly |
| Define roles and value flows | Define actors as roles | Not applied |
| | Create value flows | Applied |
| | Analyze and improve the value flow model | Applied |
| | Define business models at actor level | Applied |
| Select parties for implementation | Select first pick of parties for implementation | Applied |
| | Define selection criteria and options for other parties | Not directly |
| | Carry out screening for other parties | Not directly |
| | Develop engagement strategy | Applied |
| | Approach the organizations and build commitment | Applied |
| | Adapt the value flow model | Applied |
| | Balance value for all parties | Applied |

framing" were found in empirical cases, but they were considered to take place earlier in the innovation process. Business network re-design was regarded to start after the business idea is already known.

The next step in designing ecosystems is enriching the value proposition as co-ideation with selected parties. Business network re-design does not include co-ideation related steps as such, which is discussed more in detail later in this chapter. Creating alternative solutions and enriching the value proposition takes place at the end of the first phase in business network re-design.

The second and third phases of business network re-design are related to selecting and analyzing the current state business network, which are not included in designing ecosystems, because it does not cover existing networks. Business network re-design continues with analyzing the network relationships, which contains also analyzing the interests of the actors and stakeholders. This is quite similar to phase 3 in designing ecosystems.

Business network re-design continues with phases 5 and 6: revisiting the value proposition and redesigning the business network. Designing ecosystems has a bit similar phase 4 for designing the new ecosystem by defining roles and creating the value flow map. It was found in empirical cases that there is clear refining value proposition step in business network re-design. Such theme is not directly visible in the themes of designing ecosystems (in table 29). However, Den Ouden (2012, p. 170) states that it is also possible to redefine the value proposition if required.

The last phase both in business network re-design framework and designing ecosystems approach considers implementation. Designing ecosystems has separate themes for selecting first pick of parties for implementation and separate themes for selecting the other parties. Business network re-design does not have this kind of separation, and the selecting of parties is based on current state business network map.

In general, the approaches have a lot of similarities, but the phases have differences due to the starting point of the design effort. In designing ecosystems, the effort is based on designing the network from scratch, and in business network the design is heavily based on existing networks.

*Co-operation with other parties*

The business network re-design framework is quite well aligned with designing ecosystems approach, when considering how to carry out different steps. However, there is a contradiction regarding cooperation and co-ideation. Designing ecosystems approach suggests that the focal firm should start co-ideation of the ecosystem with other parties in an early phase. The empirical cases in the present research suggest that cooperation takes place later in the designing process and the possible co-ideation in the early phases is more limited.

In designing ecosystems, the focal firm is supposed to ask other parties for co-ideation soon after the initial value proposition is specified. The other parties involved are the ones who can contribute with relevant knowledge. It is

likely that many of the parties will have some business in the new ecosystem. Later in the process of designing ecosystems, the parties involved are going to select one or more roles in the designed ecosystem – they will be actors in the business network. The co-ideation and cooperation concerns almost the whole process of designing the ecosystems – it is a joint effort (Den Ouden, 2012, p. 144-145).

Following designing ecosystems approach would suggest that the actors in the existing business network should be asked for co-ideation and cooperation as a joint effort similarly in the early phase of the business network re-design effort. However, this kind of co-ideation or cooperation was not found in the empirical cases. In most cases, the firm having the innovation (the entrant) carried out the effort alone until the implementation phase. The entrant firm made investigations and gathered information about the target network. In some cases, the entrant made some contacts with actors in the existing network, but did not ask them for co-ideation before the entrant had made its plan for the re-designed network. During the implementation phase, the entrant was typically open to refine the value proposition and design of the network according to the feedback. Still, the entrant was controlling the initiative alone.

The co-operation and balancing of the network takes place in the last phase of business network re-design actually (as can be seen in table 27, also refer to cases described in chapters 5.2.2 and 5.3.1). The most probable explanation is that the initial situation in designing ecosystems with a transformational innovation is so novel that it requires input from a number of parties to get in-depth understanding (Den Ouden, 2012, p. 162) and to make the most important parties to commit to the new ecosystem. In contrast in business network re-design, some business and the related business networks exist already in the beginning. Therefore, the entrant need in-depth understanding of the situation where as the others might not be interested in re-designing the business network unless the entrant has prepared for some proper suggestions to the others. Furthermore, if the entrant shares the ideas too early, there is a risk that some powerful actor in the existing network pick up the ideas that suit it best and then bypass the entrant or give it a minor role (e.g. in the case described in chapter 5.3.2, it was expressed that the firm considered many other firms as competitors who revealed later to be rather potential partners).

There are two cases in the present research where the entrant had some co-operation and co-ideation in the earlier phases in business network re-design. In the e-business framework case (described in chapter 5.4.1), the firm with the innovation was a public organization, the state IT service center, and it involved other public organizations and private companies to co-ideate the value proposition. However, the state IT service center did not involve the other parties in designing the roles and value flows of the new business network. In the Finnish apartment register case (described in chapter 6.2), the initiator was the Ministry of the Environment. Here, other parties were asked to participate in workshops to co-ideate the value proposition and the principles of the

register. However, the Ministry made the business network analysis and preparation for decision-making, and the key decisions were made in the meetings of four ministries. The ministries can be seen as divisions in "Government Corporation". Again, the other parties were not directly involved in designing the roles and value flows of the new business network – even though they were able to give comments and suggestions.

To summarize, the co-ideation and cooperation may take place in business network re-design, but it is not similar to the joint effort described in designing ecosystems approach. The entrant seems to be eager to keep the control of the business network re-design until it has a feasible plan for the new business.

*Analyzing and designing the business network*

Designing ecosystems approach suggests to design the ecosystem with unoccupied roles as long as possible (Den Ouden, 2012, p. 171). In contrast, business network re-design starts with looking examples of real life business networks with named actors, not using empty roles as actors (mentioned explicitly e.g. in the descriptions of the cases in chapters 5.3.1 and 5.3.3). The current state business network map is created by analyzing named actors in the existing business network. Furthermore, the interests of actors and stakeholders are considered by having named actors as examples.

The explanation is that in business network re-design it is more important to understand how the known major players behave and make their business in the business network (e.g. refer to the description of the case in chapter 5.2.1). If the analysis would consider roles only, there is a risk that important details would be missing due to too high abstraction level. In contrast in designing ecosystems, there is no existing network to look for examples. Furthermore, the task in designing ecosystems is to design a business network best suitable for the value proposition and find actors in the implementation phase only. In business network re-design, the other actors exist already and the task is just to modify the business network.

### 8.2.3 Applying Business Reengineering

Business reengineering (Hammer & Champy, 2001) is used to re-design the processes within a firm, but it does not cover re-designing business networks. Business network re-design framework shows how business reengineering can be applied to business networks.

Hammer and Champy (2001) introduce the main issues of business reengineering approach. They describe most important viewpoints, but they do not define any sequential phases or steps. However, it is possible to specify the typical phases of business reengineering as themes (refer to table 30).

**Table 30.** Usage of themes in business reengineering
Business reengineering tasks have been interpreted to business network level here (refer to chapter 4.1.3 and table 10).

| Phase (aspect) | Theme | Usage in BNR |
|---|---|---|
| Outline and choose business networks | Identify business networks regarding the business domain | Applied |
| | Describe an outline of each business network | Not directly |
| | Select most promising business networks for reengineering | Applied |
| Understand the network and customer needs | Analyze what the business network does | Applied |
| | Analyze how well the business network performs | Applied |
| | Analyze critical issues | Not directly |
| Improve the business network | Work around outcomes and value exchanges | Not directly |
| | Redesign rather than improve | Not directly |
| | Check where IT can be used to enable new ways of working | Not applied |
| Implement the new network | Define change management strategy | Not directly |
| | Deploy the new business network | Not directly |
| | Communicate about the change | Not directly |
| | Negotiate about business roles with other actors | Applied |

Originally, Hammer and Champy advise to start by identifying the business processes of the firm. Reflecting to business networks, this task is interpreted as identifying business networks regarding the business domain (refer to chapter 4.1.3), which is applicable also in business network re-design. Next, a process is chosen to be reengineering, which is similar to selecting target business network in business network re-design framework.

Business reengineering continues with understanding the existing process and customer needs: what the process does, how it performs and what are the critical issues. Phase 2 in business network re-design concern the same with business networks.

Phase 3 in business reengineering concentrates in reinventing the process. The aim is rather a radical change than to tune the existing network. This may also alter where the process starts and ends. Phases 5 and 6 in business network re-design framework handle similar issues with business networks: the network is rather changed than improved. However, the corresponding themes of business reengineering are not directly connected to business network re-design framework in table 27. This is because themes in another approach (designing ecosystems) fit more precisely to business network re-design than the a bit overall themes of business reengineering.

Both business reengineering and business network re-design have implementation as the last phase. Again, the steps in business network re-design are similar to the themes in business reengineering, but most of the related themes of business reengineering were not mapped to business network re-design framework steps in table 27, because themes in another approach suit better.

## 8.3 Managerial Implications of the Research

Having new innovations and commercialization of innovations is crucial to firms in all industries. It is hard and risky for a firm to enter to a new market with a new value proposition. Business network re-design framework gives an approach for practitioners how to manage the situation. Moreover, it provides a comprehensive method and guidelines how to do it in practice.

Many breakthrough innovations are created by new entrants, who change the rules of an existing market. Incremental innovations are also important, but they are seldom disruptive innovations (Christensen & Raynor, 2003) that create totally new business opportunities. Here, new entrants may have an advantage over an industry's incumbent firms by utilizing a different view to the value network (Christensen and Rosenbloom, 1995; Christensen, 2003). New entrants, startups or firms coming from another business area, have to start somewhere. They have to find a position for their products or services in an existing business network. Business network re-design framework provides an approach to manage the challenging task to enter to a new market.

Entering to a new market and creating value innovations is harder than staying in the firm's existing industry and making incremental innovations. Many firms have development units and development processes to manage incremental development. The managers know how to launch a new version of a product or service. But when it comes to entering to a new market, it is much harder. Firms have seldom processes for being an entrant and finding a position in existing networks for their new innovations. It is a hard and risky task for managers, because they do not often consider entering to a new business network. Business network re-design framework gives a step-by-step guidance for this task.

There is always a risk of failure when launching a new innovation to the market, and the risk is higher when it is a new market. Business network re-design framework reduces the risk by introducing an organized way to be the new entrant.

## 8.4 Evaluation of the Research

*Evaluation criteria*

Reliability and validity can be applied to qualitative research strategy, even though there are different opinions how well they can be imported to qualitative research – some consider to follow quantitative research meanwhile some other state that is not possible or desirable (Bryman & Bell, 2011, pp. 394-399). According to LeCompte and Goetz (1982), reliability and validity can be seen as (Bryman & Bell, 2011, p. 395):

- External reliability refers to the degree to which a study can be replicated.

- Internal reliability refers to the degree research team agrees (multiple observers) about what they see and hear (similar to inter-observer consistency in quantitative research).
- Internal validity refers to whether there is good match between researcher's observations and theoretical ideas they develop.
- External validity refers to the degree to which findings can be generalized across social settings.

Riege (2003) describes fifth criteria of construct validity that establishes appropriate operational measures for theoretical concepts being researched. That is answer to question, "Does the study measure what it claims to be measuring?"

*External Reliability*

External reliability of the research depends on how easy it is to repeat the study. It is possible to repeat the interviews[12]. The situation of business network re-design is not a typical situation that would take place frequently in an organization. It is not possible to redo the described cases, but it is possible to repeat the study with other firms and their business cases based on similar initial setting.

*Internal Reliability*

Three different experts carried out the described cases, which means a better inter-observer consistency. Furthermore, the interviews included also business managers of the organizations – giving a broader view to the business network re-design situation.

*Construct validity*

For assessing construct validity, Riege (2003) suggests using of multiple sources of evidence, establishment of a chain of evidence and reviewing of draft case study reports. The present research used interviews, written documents and observations to provide multiple sources of data[13]. The chain of evidence was carried out as first building the business network re-design framework in the second phase of the current research, and then testing it in the third phase.

*Internal Validity*

To obtain internal validity, Riege (2003) advises using of within-case analysis and the cross-case pattern matching, displaying of illustrations and diagrams in the data analysis phase to assist explanation building, and assurance of internal coherence of findings, which can be achieved by cross-checking the results. Within-case and cross-case analyses were made in the second phase of

[12] The interviewees are listed in appendix 1, and a template of interview questions is available.

[13] Observations were used in the action research phase.

the present research when the business network re-design framework was built. Diagrams were used to show how the framework was developed in iterations. The third phase of the present research acts also as a cross-checking of the results.

*External Validity*

To increase external validity, Riege (2003) recommends using of replication logic in multiple case studies, definition of the scope and boundaries in the research design phase, and comparison of evidence with the extant literature to clearly outline contributions. The present research used replication logic in both empirical phases of the research. The scope and boundaries were defined in the research design phase. Extant literature was compared first during the building the business network re-design framework as enfolding literature. Next, a comparison with literature was made after the framework was specified. Furthermore, connections between the framework and literature were elaborated in detail in chapter 8.2.

The study includes nine cases, which covered companies of different sizes and industries and also some public organizations. This suggests that the results can be generalized to business network re-design situations in wider sense than just the specific cases in the study.

*Limitations*

The present research studied how to apply the business network re-design framework to private and public sector organizations. The research did not cover third sector, but there are no limitations why the framework could not be used there. It was stated in the research scope and limitations (see chapter 1.2) that the starting point of the research was product and service innovations and B2B market. All the cases considered services, not product business. For example, the research did not cover an industry like manufacturing, where the firms have to consider large investments. The present research was fully concentrating in B2B business – it was not studied whether the business network re-design framework can be applied to B2C business or not. All cases also considered business network re-design within a country. Freeman et al (2007) have considered the situation of a firm to enter to another countries by making use of local business network in the target country. This gives support for the suggestion that business network re-design could be also applied to entering to another country, but it was not studied in the present research.

## 8.5 Further Research Issues

Future research could extend the analysis of business network re-design also to other settings, for example to a specific industry or B2C business. A possible step could be to apply the business network re-design framework to a situation where a firm enters to another country. A third option could be to study the phenomena with different research methods. It is perhaps not an easy task to

have a large number of business network re-design cases, but a future research could use the business network re-design framework as a hypothesis which is tested using quantitative methods.

Some of the phases in the business network re-design could also be investigated more in detail. For example analyzing interests of different actors and stakeholders is an issue, which is highly important and there is little research considering interests in a business network design situation. The research on the implementation phase of the re-designed business network is also something that could have contribution to theory and practice.

Furthermore, an interesting avenue for future research could be to study the business network re-design issue in a longitudinal setting. For example studying questions like “What happens after the firm has entered to a new market,” “Does it need to adjust the business network more after entering to the new business network,” and “Do the other actors in the network try to modify the business network also?“

## 8.6 Summary

Business networks are living all the time and firms have to conform to the dynamic nature of the networks. Furthermore, firms should actively affect to the business networks in order to enable their new business opportunities. The business network re-design framework provides a remarkable tool for researchers and practitioners, here.

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# Appendices

## Appendix 1. Business Network Diagrams in Phase 3

This appendix contains some business network maps produced in the case.

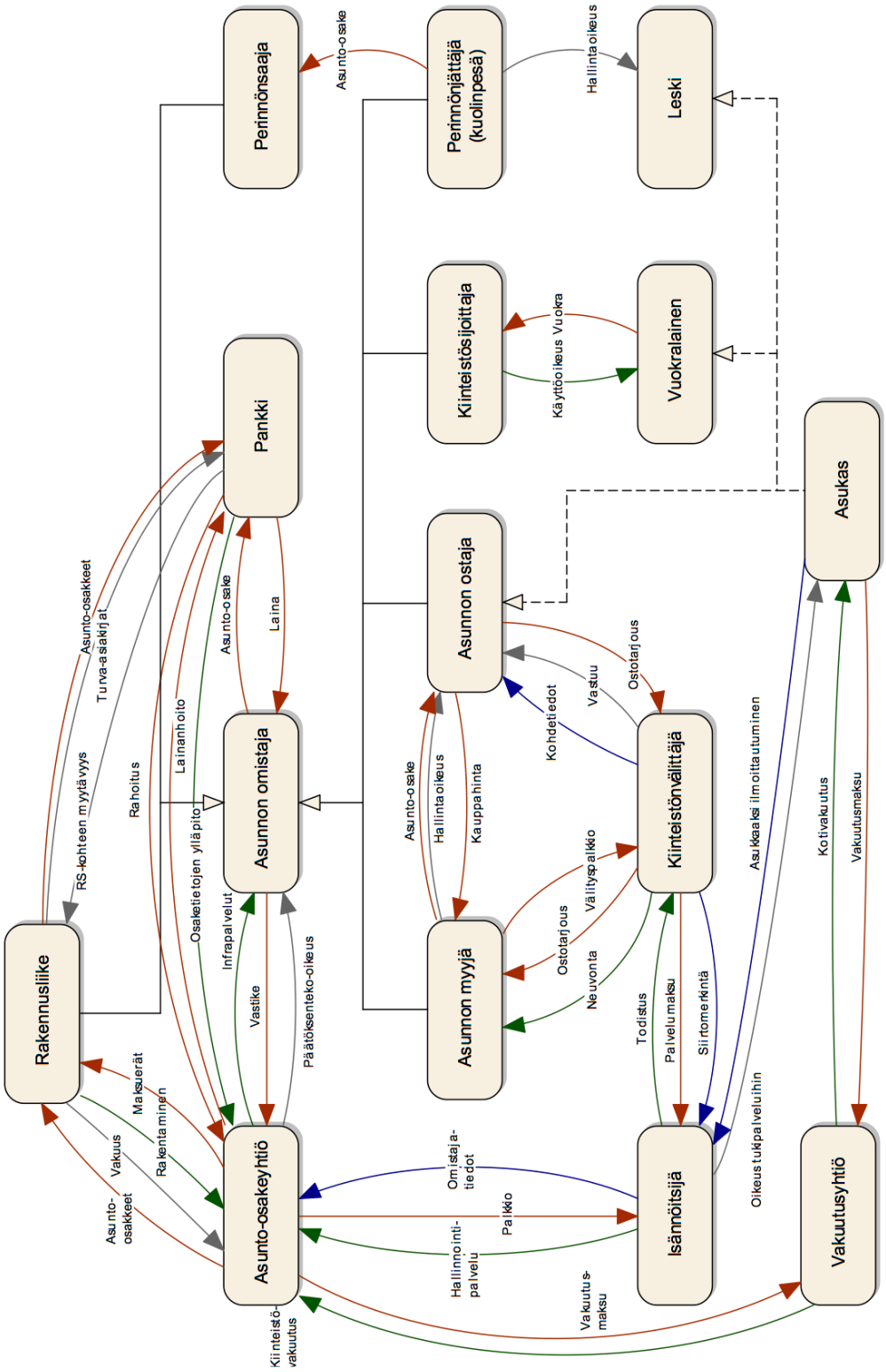


**Figure A1-1**. Current state value network of primary actors in the action research case.

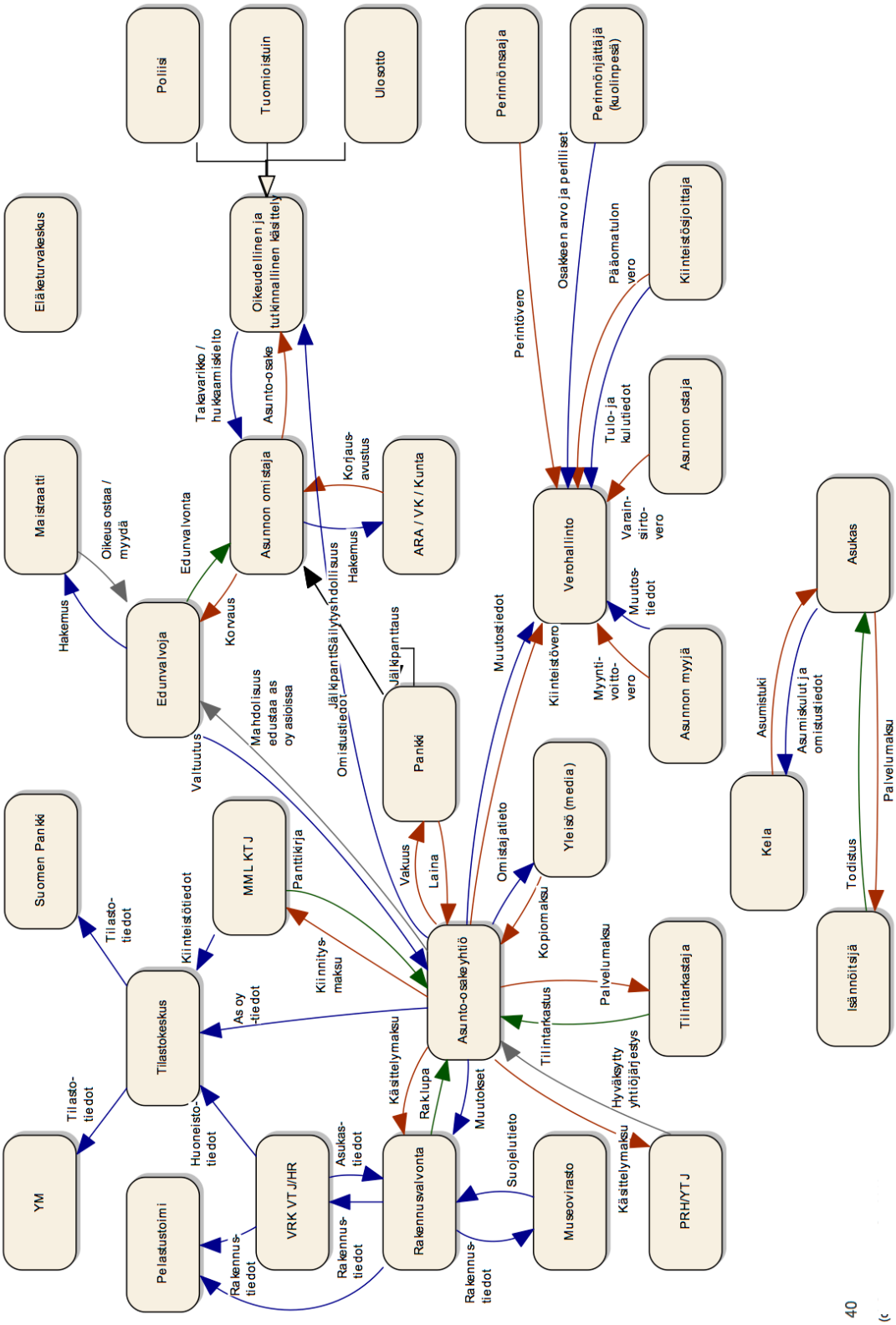


**Figure A1-2**. Current state value network of secondary actors in the action research case.

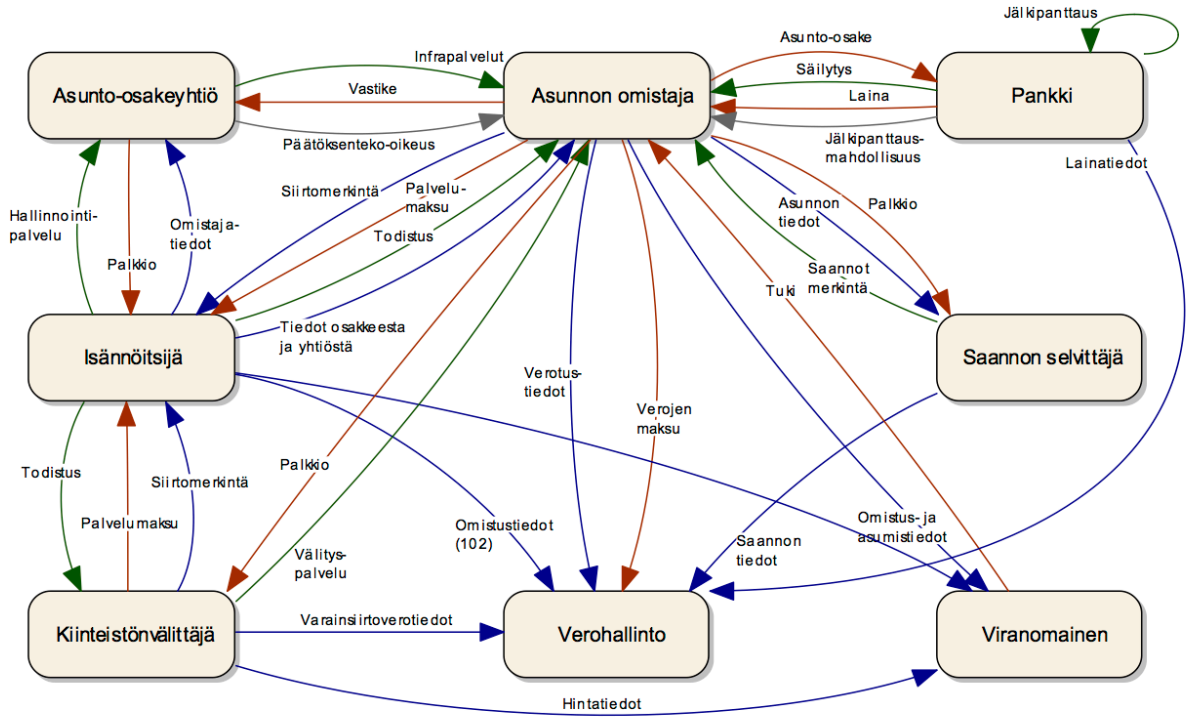


**Figure A1-3**. Current state value network of key actors in the action research case. The diagram contains those actors, who are most important for the planned register.

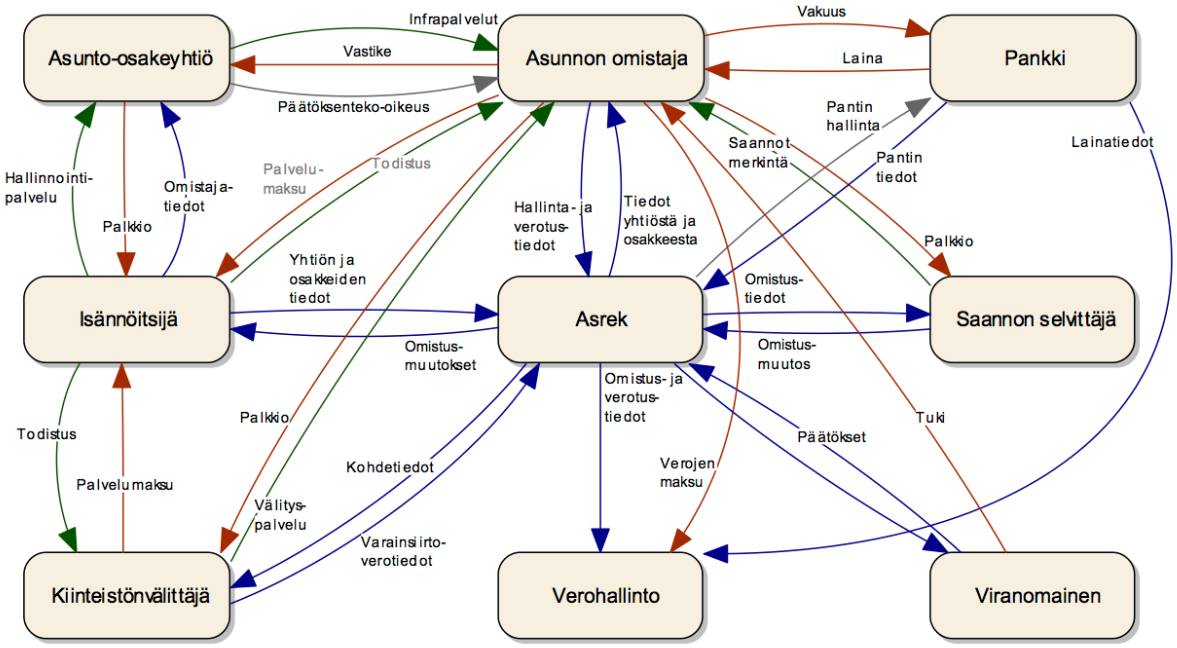


**Figure A1-4**. Target state value network of key actors in the action research case.